Gleanings in Bee Culture

CONTENTS

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Honey Market 69
Do Package Bees Pay Off the First Year? — Arthur White ..... 73 - 74
Producing Packages and Queens — E. C. Bessonet ..... 75 - 78
Beekeeping in Mexico — R. B. Willson ..... 79 - 82
Another "Easy Does It" Idea — A. K. Hibbard 82
Ecological Studies on Overwintered Honey Bee Colonies — C. L. Farrar ..... 83 - 86
February Fare — Mrs. Benj. Nielsen 87
The Sugar Concentration of the Nectar of Some New England Plants — Dr. F. R. Shaw ..... 88 - 89
Live and Learn — Propolis Pete 90
Second Glances — C. M. Isaacson 91
Controlling Flight Distance of Honey Bees with Nitrous Oxide — George Hundsdorfer 92
Uses of Honey and Other Bee Products — Dr. Eva Crane 93
A Talk to Beginners — M. J. Deyell ..... 94 - 95
Editorials ..... 96 - 98
From North, East, West and South ..... 99 - 106
American Honey Institute News Notes — Mrs. Harriett M. Grace 107
A New Smoker Shield — Charles Koover 108
Beeswax Scales Recognized in 1744 — Frank Shaw 108
Professor Paddock Receives Recognition 109
Nosema — W. Geoffrey Moore 109
Difficulty in Making Honey Vinegar — Paul S. Grierson 110
A Way Not to Requeen — Herbert Warfel ..... 110 - 111
Just News ..... 112 - 113
Asked and Answered ..... 114 - 115

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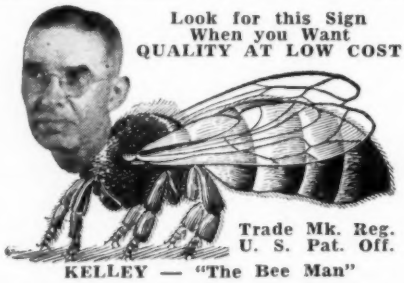

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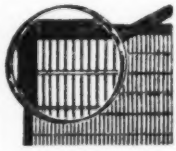

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HAVE YOU SEEN THIS BOY?

Our son, William Octavius Victor III left home to go to a football game at 6:30 in the evening of October 10. We haven't had any word from, or haven't been able to find him or get any trace of him. We have exhausted every resource, so far, that is available to us, through the Armed Services, F.B.I., and Local Law Enforcement Agencies.

We know of no reason for his disappearance. He was an honor student and seemingly well adjusted, with all the privileges that we thought any boy might desire. He had anticipated on going to Rice next fall. He did not drink or smoke; was the Co-Captain of the football and basketball teams and competed in both with a Letter in each for 3 years. He liked to hunt and fish, did quite a bit of reading and a normal amount of going to picture shows. Had worked in the bee business with us all his life.

Am enclosing a picture taken in school last year; he has changed very little since then.

He is 17 years old, will be 18 May 16th., 5' 10½" tall, weighs 168 pounds, has blue eyes, blonde hair, has to wear glasses, which were light shell rimmed glasses. When he was last seen he was wearing brown oxfords, white T shirt, kaki trousers, blue and gold football jacket. Was carrying a Texas Commercial Driver's License No. 3584568.

Anyone who has seen this boy or has any information about him, call or wire collect Mr. or Mrs. W. O. Victor, Jr., Rockwall, Texas, or Mr. W. J. Price, Sheriff, Rockwall County, Rockwall, Texas.

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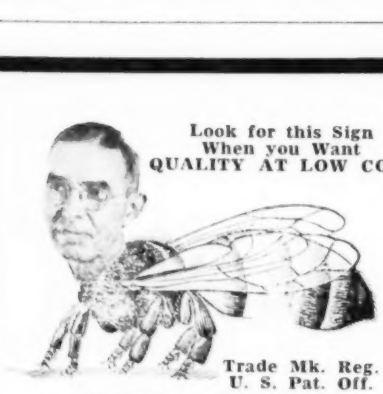

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Monthly Honey Report

January 20, 1953

The following figures represent an expression of current prices from beekeepers and honey packers over the country. They are based on several reports from each state averaged with the reports in the region. Where insufficient information is returned, prices have been omitted from the chart. Where three figures appear on the chart the first figure represents the low, the middle figure represents the average, and the third figure the high price in cents per pound. Where only two figures are used the low and high are shown.

	North Atlantic	South Central	North Central	Midwest	Northwest & Pacific
Bulk Honey:					
Table Grade			11-13-16c	11½-12-13c	11- 12c
Industrial Grade		9½ 12	9½-11-15	9½-10-10	9-9½-10
Price to Grocers:					
5 lb. jar - can	18-22-26	18-22-28	15-19-21	16½-18-22	15-17½-20
3 lb. jar - 12's		20 22			
2 lb. jar - 12's		21-24-30		20-22½-27	21½-23-25
1 lb. jar - 24's	25 30	23-27-30	22-25-27	22-25-29	23-24-27
Comb Honey:					
Cs. of 24 Sec.	$8.40-9-10	$6.75 7.50	$6.60-8-9.60	$6.50-7.60-9	
Retail Price:					
60 lb. can	15 20	12½ 20	15 22½	15-16½-20	13½-16-20
5 lb. jar	23 35	23-27-35	19-23-26	18½-22½-25	21-24-25
3 lb. jar	31½ 40	23 30	23 30		
2 lb. jar	30- -37½	25-33⅓-40		24-29-32	27-30½-35
1 lb. jar	30-36-45	31-32-45	28½-31½-35	26½-32-35	32-33-35
Honey Sales:	Fair	Fair	Fair	Fair	Fair
Estimated Crop:					
Condition based on normal %	95	84	50	74	73
Beeswax		40-42-45		35-43-52	35-38-41

A few comments from reporters:

"Honey is pretty well out of the producers' hands."—Florida

"Ideal winter to date."—Wisconsin

"Bees wintering fine. Mild weather. Only one or two days they could not fly.. No honey in producers' hands unsold. Honey consumption here could be increased 100% with just a little advertising, but no one to push it but local producers and they are sold out."—Arizona

"Some damage to clover seedings due to extreme dry fall."—Minnesota

The general commodity price as reported in the Journal of Commerce for some 30 commodities stands at 271.2 as compared with 271.1 a month ago. 1938 is figured at 100.

PACKAGE BEES	ITALIAN QUEENS		
	1-49	50-99	100-up
2 lb. with queen	$3.50	$3.25	$3.00
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4 lb. with queen	5.50	5.25	4.90
5 lb. with queen	6.50	6.25	5.80
Queens	1.15	1.10	1.00

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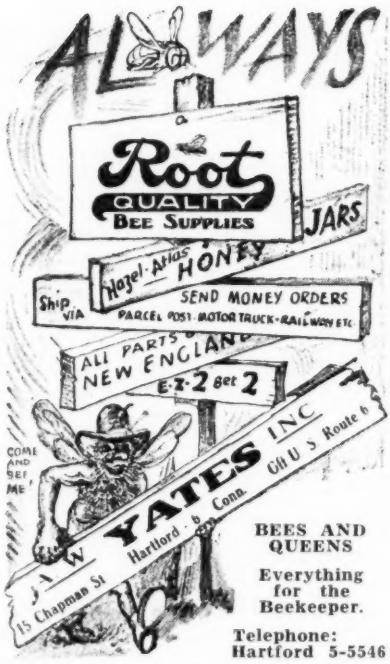

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Bee Lines to The Editor

"On page 737 column 1, December issue you ask . . . 'What do our readers want?' Paragraph 4 states that you try to emphasize the principles of beekeeping . . .

"On page 734 in a box of the same issue you state that an article is made more acceptable where good clear pictures are included.

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(Continued on page 125)

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100-499	1.05	3.25	4.15	5.05	5.95

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Do Package Bees Pay Off the First Year?

By Arthur White, Jackson, Michigan

Package bees are easy to install and are profitable the first season.

Over 1800 pounds of extracted honey, about 150 sections of comb honey, all of this was produced from 16 two-pound packages of bees hived on April 17, 1952.

Up until a few years ago beekeepers had to depend on their wintered-over colonies to make increase, and to replace winter killed colonies. But now, with plenty of package bee producers and fast shipping, a beekeeper can have all of his colonies up to full strength in time for the main flow.

In writing this article I don't want to give the impression that making increase in the spring with a new queen is not a good method. It is, provided you can have your bees strong enough to do it early in the spring. Frankly, I can't and that is why I am leaning more to packages for increase. So, naturally, this article should be a boost to the package bee producers.

When I began beekeeping nine years ago, I started with packages. I had fairly good luck, for an amateur. Of course, all the local old-

time beekeepers that I knew said, "Oh! you can't get much out of package bees the first year. If they fill their food chambers and give a little surplus you will be lucky. They won't amount to much until the next year." So, being green at the game I more or less believed them. But every year I would order more packages. At the same time I would try to build up my wintered-over colonies to make increase. On a few I could, but the majority looked no better than a good two or three pound package.

If the spring happened to be wet and cold, with no nectar coming in, the wintered-over ones didn't seem to get going, whereas, the package bees seemed to take right off. In checking the wintered-over colonies, I couldn't feel safe to take away three frames of brood about April 20 in order to start a new colony. I tried it for a number of years and it just seemed to retard the old colony. Consequently, I couldn't see where I had gained much. True, you can make increase just before the honey flow, but the colonies aren't any good until next year, and you still have to winter them over.

So, I began to study the package-bee situation more thoroughly, with an eye to getting as much out of two or three pound packages headed by good young queens as my wintered-over ones. So I more or less forgot what the old beekeepers had said about package bees not being any good the first year.

Early in '51 I had some extra equipment. I had established a good market for honey and I had to increase my production. What should I do? Buy queens in late April, and hope for an early warm spring for brood rearing, or put in my order for packages? Hoping for an early warm spring in this part of the country is a big gamble.

I finally decided on packages for increase. I would leave the wintered-over colonies alone, except those that I thought would get too strong. I had 25 two-pound packages arrive for April 15, 1951. A couple of queens gave out in about two weeks, but I figured that wasn't any worse than a couple of wintered-over ones dying off. I kept close watch of them. They built up well and by June 1, some were as strong as the wintered-over ones. On some I switched brood and tried to keep them about even. We had a rather cool and wet summer for the honey flow that year.

Came extracting time. I found that on an average they had stored as much as the others. Having a limited amount of space in which to extract, I wasn't able to keep the supers separate, but I was more than satisfied with the results.

During the winter of 1951-'52, I made plans for the summer of '52. I had located an excellent source of sweet clover eight miles away, so I made arrangements to start a yard there in the spring. As I had acquired more equipment, I decided to order 50 two-pound packages. I planned on putting 20 in the new location. I had enlarged my honey house, so I had ample room to keep the experimental yard separate when I started to extract.

The experimental yard of 20 was hived April 17, 1952, on drawn combs containing pollen and one frame of honey. I fed each hive five pounds of sugar syrup a week later. About the middle of May, I fed another five pounds and that was the last I had to feed them. Out of the 20 queens, three failed and one swarmed (why, I don't know, but they left a queen cell) so 16 were all that produced.

Our honey flow got under way about June 15, and by then most of the 16 had plenty of bees and brood. I built up the weaker ones with brood from the stronger ones. This last year we had an exceptional honey flow in this part of the country. A scale-hive in my home yard gained 78 pounds for June, and 91 pounds for July. (I keep a scale-hive record for Michigan State College, at Lansing, Michigan.)

By the middle of July, these 16 hives of bees were really storing honey. Two of the strongest I used for comb honey and by August 1 each had three supers filled (28 sections to the super) and was filling the brood chamber.

About August 15, I removed the honey from this yard. I took off 30 full-depth ten-frame supers, nine shallow supers, and about 150 comb honey sections. I extracted this separately and I filled 36 pound cans. As the fall flow looked promising I put the shallow supers back on which the bees filled, besides storing enough to winter on. The fall honey I extracted from this yard I estimated at 300 pounds.

The balance of my package bees

(Continued on page 123)

One of Bessonet Bee Company's queen yards. An Iowa visitor in the foreground.

Producing Packages and Queens

By E. C. Bessonet, Donaldsonville, La.

The average beekeeper seems to attach little importance to good stock according to my observations. This attitude has done more to discourage stock improvement than any other cause in that a breeder who is continually faced with competition stemming from sources where economy of operation is foremost in their minds, makes it difficult to operate a high cost breeding program. This trend has meant a continuous review of operating costs to reduce them without decreasing quality. Since there is a limit to reducing costs, especially during a period of inflation, beekeepers will have to decide for themselves whether or not good stock will provide a reasonable profit.

The initial cost of queens and packages means so little, if we are to consider which type of stock produces the most profit at the end of the year. We find more beekeepers each year who have been convinced that good stock is needed for profitable operations and, as a result, those breeders who are conducting a breeding project are enjoying a larger volume of business. Check the records of those advertising several years ago and you will find many breeders are no longer in business. I do not doubt that some produced good stock and for other reasons were forced out, but the fact remains that many of the old reliable breeders continue to operate in some fashion.

Practical Breeder Selection

One of the most costly parts of the breeder's operations is to select his breeding stock. If a breeder is cost conscious, then he may just check his good colonies for the characteristics he desires which is relatively simple and inexpensive. In contrast to this procedure, an intelligent approach requires work, and that is expensive. In our program we keep a constant check of outstanding colonies and run tests on these to determine if the progeny represents our strain.

In carrying out such tests a graft of about 100 cells is made and records kept so we do not lose sight of the mother of the progeny queens. If the progeny represents our strain as to color, which is a deciding factor at this stage, we proceed to introduce these queens to normal col-

onies for future observations. Ordinarily, we graft from a dozen or more queens in order to have a sufficient number of groups for comparative purposes. These groups are checked frequently to determine their behavior, brood pattern, population, and production. It is to be expected that there will be some variation, but we have an opportunity to study the various groups and decide which mothers are producing the best daughters as a group.

You could take a test from a dozen sister queens and obtain different results, as few if any would mate with brother drones and this of course would be reflected in the performance of daughters from those sister queens. The reasons for such variations could be described in technical terms involving complex genetic factors, but I do not intend to become too technical. I mention this fact, as I intend to adhere to the practical side and, after all, group tests give us an orderly solution to our problem without having to find out the reasons for what has happened. We do know that the results can be explained from a technical point of view, but that would not change the results with this knowledge.

Care of the Breeder Queens

With several good breeders meeting certain standards, we proceed **to place these breeders where special care can be given** them and have them available for breeding purposes the following spring. The care of the breeding colony is important,—a hungry colony will certainly fail to produce good healthy larvae for grafting. This care includes providing not only honey and sugar syrup as a stimulant, but pollen combs to complete the diet. If necessary, bees are added to assure ample nurse bees to maintain a satisfactory condition within the colony.

The population of the breeding colony is essential, as a balance between the ages of the bees must be maintained. Remember that in providing adequate incubation, nurse bees and worker field bees will result in well-fed larvae provided the food requirements are ample. In the event of any shortages, supplemental feeding of sugar syrup, or pollen, will take care of the deficiencies. With the larva having a good bed of royal jelly, we have a promising start towards producing a good queen insofar as size is concerned. Quality, of course, depends largely on the breeding background which should be known before the breeder is approved. The breeder queen is responsible for only a part of the quality of the queen's progeny. The quality of the drones is as important as the quality of the breeder. Selection of drone colonies is based on the same basis as those of the breeders to assure good qualities from both mother and father.

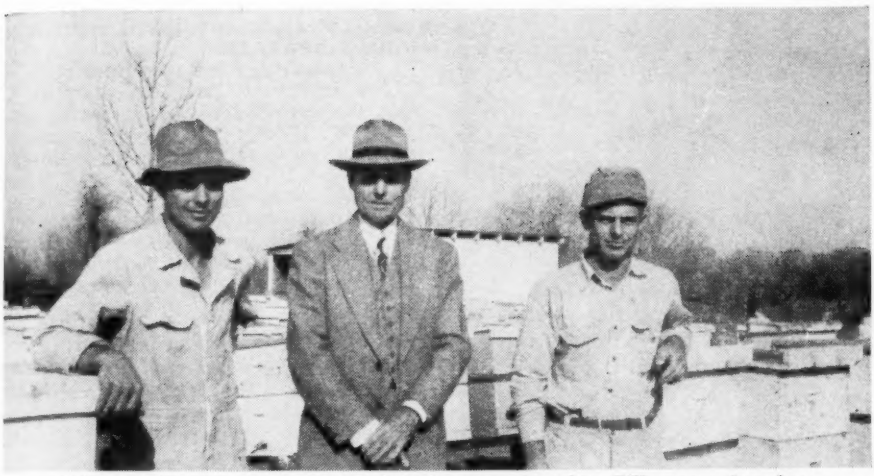
Cell Colonies

This is the third step towards producing good queens and a very important procedure in the complex approaches to the production of quality queens. I have emphasized colony balance in the breeder colony and the same applies to the cell colonies. In fact, it is perhaps more important to maintain a balanced condition in this group of hives, as the results from poorly managed colonies will be improperly fed queen cells. Unless the breeder keeps a close check on every cell colony to determine its needs, such colonies will fail to respond favorably and produce good cells. I want to again repeat that ample food, pollen, and worker bees of the right ages are essential. When any of the factors are out of balance, prompt action must be taken to correct any deficiencies. It has been observed that adding bees will bring prompt colony response to feeding cells IF a sufficient amount of pollen and honey, or sugar syrup are in the combs. The manner in which cells are started and finished is well known, but a brief summary will remind us of the procedure.

The starting of cells is done by grafting young larvae between 12 and 18 hours old. I recommend priming* the cells with diluted royal jelly to avoid a delay in feeding of larvae, as larvae must be fed continuously and even a short period without food can be harmful. During the grafting†, the room temperature should be warm to avoid chilling. Grafted cells are rushed to starting colonies previously prepared to accept the cells. These starters can be prepared in various ways and many have been success-

*Priming means placing a small amount of royal jelly in the center of each artificial queen cell cup. The larva when it is lifted out of the worker cells is placed on top of the royal jelly.—Ed.

†Grafting is transferring young larvae from worker cells to queen cell cups by means of a grafting needle.—Ed.



Calvin, outyard manager; E. C. (Bess), queen breeder; Bill, queen breeder.

ful with their own methods. The basic fundamental is to prepare a queenless colony in such a manner that it will have an incentive to start the cells. Never make the mistake of giving too many cells to a starter, as that will give the bees too much to do and when this occurs, the cells will not receive ample jelly. Fifty to 60 cells are about what an average colony will feed properly if well managed. It is an easy matter after 24 hours to observe the amount of feed in the cells. Larvae at this age do not have very much jelly, as the bees usually start increasing the amount after the second day. Much depends on the age of the larvae when grafted, as some use larger larvae and of course on the second day the bees will have more jelly in the cells due to the greater needs of the larger larvae. However, further observations of the cells after they are placed in the finishing colonies will show that the bees are feeding the larvae more each day until the cells are capped. Optimum conditions must be maintained in both the starting and finishing colony to avoid poorly finished cells. It is these operations that are so important and the best skill of the queen breeder is required for best results. It is here also that costs can be cut in feed and time. It is the combination of the breeding background and care in developing cells that produces quality.

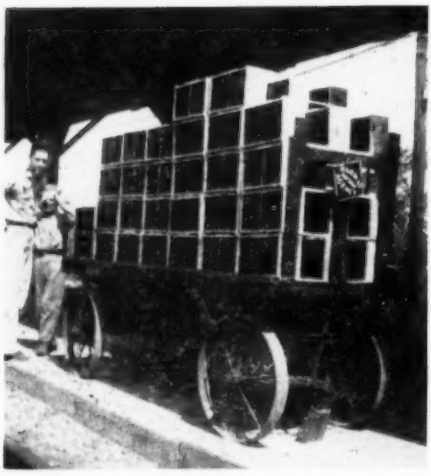
Handling Queen Cells

I have not mentioned that records have to be kept of the cell frames in order to know where they are and when to remove them and place them in the queen nuclei or mating hives. Ten days after grafting, the cells are ready to be removed from the finishing colony and placed in queen nuclei.

It is a difficult job to keep cells warm during cold weather, so great care must be given to ripe cells. By using a box with a warm cloth, and not taking too many out of the hive at a time, the cells can be rushed to the nuclei with little loss. Culling cells is always necessary, as no matter how well the work is done, some cells will not be up to the desired standard. It is for this reason that the breeder should graft many more cells than will be needed so he can cull without being short of cells. The conscientious breeder uses more cell colonies, and does more grafting and culling to maintain his reputation.

The Queen-mating Nuclei.

I have been greatly amused by advertising claims that the breeder uses large queen nuclei claiming that this type of hive will produce superior queens. Our research men exploded such claims many years ago and no proof has been offered to support any claim that better queens are produced in large nuclei. The reason is that the queen nuclei has little to do with the development of the queen. It does have to provide incubation for the cells until the queen emerges and beyond this point the only function is to keep the queen fed and provide a place for her to stay while she ma-



Package bees to be shipped from the Bessonet Bee Company.

tures to the point where she mates on about the seventh day after emerging and starts to lay, which is about the third day after mating. Nuclei can be too small and when such nuclei are used the tendency to abscond is greater. The majority of breeders have come to the conclusion that the standard baby nucleus serves the needs of the breeder. These should have three frames and a feeder for best results. I have experimented with every conceivable type of nuclei.

Like the cell colonies, queen nuclei for best results need a balanced condition within the nuclei. This covers ample bees varying in age, feed, and pollen. The division-board feeder is commonly used for feeding. Hungry bees will ball virgins and other troubles develop when queen nuclei are not well managed. Never permit the bees to feel that their condition is hopeless, as queen production will vary according to how well nuclei are managed. Weather conditions can and do give trouble, as bad weather causes heavy losses when queens mate. Strong winds can cause mated queens to drift into the wrong nuclei and be killed. Getting queens mated and safely back into the nuclei is an important objective, but we have practically no control over such developments. Science has taught us how to provide supplements and to improvise to imitate nature with some measure of success, but mating losses due to weather conditions remain a difficult problem.

Quality Package Bees

The buyer of package bees as a rule does not know the basic requirements necessary to produce quality bees. It is almost impossible for the buyer to look at the bees in the package and determine whether or not he has the kind of bees that will support the queen in developing the colony. If too many old bees are present, the population will shrink rapidly resulting in a serious handicap for the queen. Good breeders should adopt a system of management which makes it possible to reduce the number of old bees before the package season is under way. To achieve this objective, it is necessary to continue to shake every package colony regularly prior to the shipping season to remove as many old bees as possible. In too many cases, colonies are not shaken before the shipping season and when packages are taken from such colonies, too many old bees will be present. Good queens can be seriously restricted in their normal egg laying as a result of not having worker bees of the proper age. We find that to do a good job, the cost of operations is increased, as a continuous shaking of all colonies requires time and extra costs for labor. Our policy is to make plans to limit the amount of bees taken from any given colony to enable us to shake all colonies. Inasmuch as we require over 5000 pounds of bees for stocking nuclei and strengthening cell colonies, we manage to remove the bulk of the old bees before shipping starts.

Quality is not only determined by the age of the bees, but also by the absence of drones in the package. It is the combination of good queens with the proper breeding background, management of cell colonies and of queen nuclei, that produces queens of good quality. If we place good queens in good packages, we have material which the beekeeper can manage with profit.

It is time to differentiate between good queens and packages against poor queens and poor packages, as nothing can cause disappointment to the buyer more than to find that his investment is destined to bring losses which he is unable to afford.

Good Service Important

Service to my way of thinking is another important consideration

(Continued on page 122)

Beekeeping in Mexico

By Robert B. Willson, New York City, N. Y.

Fig. 1. The Mayan god to bees and honey showing: (a) the hollow log bee hives; (b) the honeypots for storing honey.

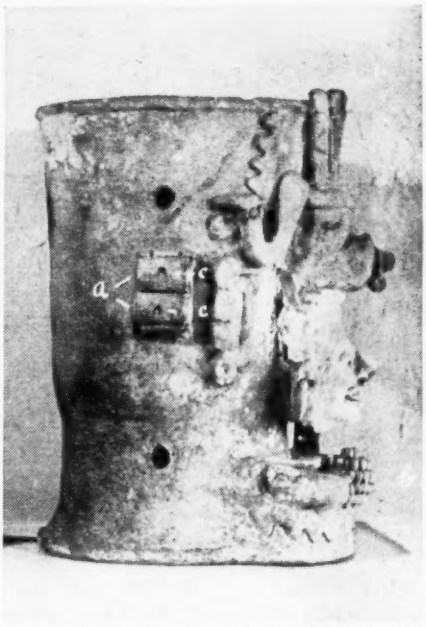


Fig. 2. Side view of Fig. 1., showing: (a) the log hives; (b) the honeypots; (c) the bees on guard at the entrance holes. Photos by Manuel Rios-Covian.

Ante Apis Mellifica.—It was once my privilege to be closely associated with a great man, Dr. Ernest Lloyd Harris, a man of letters who had been a career diplomat of the United States. I asked him one night at dinner what was the most interesting foreign country in which he had ever traveled. He had traveled the world over and without hesitation he replied "Mexico". May I suggest that you take out your atlas and look at Mexico, especially the Yucatan Peninsula, because for the purpose of at least the greater part of this article, we shall go there and talk about bees.

Directly as the DC-4s fly from New Orleans, three hours south, is Merida, the capital city of Yucatan. An intensely interesting city it is, but it was non-existent in 1504 when Cortes set out to conquer Mexico for the Spanish crown. Several hundred years before and extending back before that about 1,000 years had flourished thereabouts the brilliant civilization of the Maya—pure Indians of great intelligence, industriousness, cleanliness, and morality. It had been a civilization of cities best compared to the civilization of ancient Greece with Athens, Corinth, and Sparta. The Maya shifted from one location to another and, about 1200 A. D., disappeared as a great civilization for reasons still unknown although every great student of this subject seems to have his own but unproved theory of the cause of its disintegration. When the Conquistadores of Spain finally took over, in about 1519, none of the great cities was standing. The Maya were then in scattered small communities, living mostly in the humble, thatch-roofed, single-room dwellings in which they live today. The great temples and pyramids of their cities had more or less tumbled down and all had become overgrown, scarcely noticeable in the dense jungle growth.

The ancient Maya were smart. They were skilled in astronomy and had a calendar as accurate as ours. They were well-governed and sternly meted out justice. They were

Fig. 3. The giant jar or olla for transporting honey by the Maya of the pre-Columbian civilization.—Photo by Manuel Rios-Covian.

highly moral and, though warlike, they were deeply religious. Like the ancient Greeks, they paid homage to many gods, including gods of bees and honey.

Bees and honey? But, I hear you say, I have always been told that the white man brought our honey bees to the Western Hemisphere. True, but another kind of honey bee was there, all members of the **Meliponidae,** a great family of bees scattered about the tropics of the world and abundant in the Western Hemisphere.

Beekeepers who know only our own honey bees, **Apis mellifica,** are always intrigued with the idea of bees that can make honey but which do not sting. All of us, including the most inured, have experienced days when handling our bees has been accompanied by severest pain, stoically borne to get needed work done. The next day, our hands would be almost too sore to work. What a happy thought then: the stingless bee!

The ancient Maya kept this stingless bee. Sugar cane was unknown in the Western Hemisphere, so here was their sole source of sweet. What evidence do we have of this bee's importance to that brilliant civilization?

Imagine this writer's thrill to have inquired, back in 1948, of the curator of the Merida Museum, if there were any things therein pertaining to honey bees or honey and to find they had there in perfect condition a god to the honey bee itself (Fig. 1 and Fig. 2). Proof enough of its importance, but there was more! Also in perfect condition in that museum was one of the great vase-shaped jars or ollas (Fig. 3) used before the white man came, to transport honey from what is now Yucatan to the base of the Peninsula, now Tabasco, as a commodity of commerce to be exchanged there for cocoa beans, with which was made the favorite beverage of the ancient Maya. A metal tag bearing an inscription in Spanish to this effect has been placed on this specimen by the museum authorities.

Let us return a moment to that honey god (Figs. 1 and 2). The somewhat conical cluster under the face are honeypots, replicas of the cells in which the stingless bees store their honey. Note the two hollow log hives on each side and look closely (Fig. 2) and see the bee in each entrance hole, standing guard. There is no mistaking the realm of this god. The entire idol is about 18 inches high.

Fig. 4. The hive of the stingless bee used today. The author with M. Rios-Covian and native Indian.—Photo by Alberto Oramas Repetto.

What is especially remarkable about these bees is that with good care, they produced only about four or five pounds of honey per hive a year, which we know because there are many colonies of stingless bees kept by the native Indians in Latin America today. Figure 4 shows the author with his very good friend, Manuel Rios-Covian of Merida, and an Indian in the center, with one of the small hollow logs removed from the apiary so we might get a close-up picture. These bees, about two-thirds the size of our honey bees, buzzed around us much like ours and darted at us as if to sting. This may be an indication that at one time these bees did have stings as vestigial parts of stinging apparatus are still to be found in some of the sixty-odd species of the three genera that make up this great family of **Meliponidae.**

Several species of stingless bees were kept by the ancient Maya, but the one most commonly kept in those days as well as today is the species **M. beecheii.** They have a relatively small colony compared to our honey bees, but they have a queen, workers, and males like ours, and they gather nectar and pollen, and swarm like ours, but the brood nest is in horizontal rather than vertical combs of a single layer of cells, and the honey is off to the sides of the brood nest in larger waxen resinous cells called honey pots. Usually the hives are kept under a thatch roof for protection from sun and rain, closely arranged together on racks well up off the ground (Fig. 5). Records show as many as 400 have been kept in one apiary in Yucatan which seems always to have been outstanding for honey production.

The mysteries of the early civilization in Mexico have attracted many scholars and their published studies make fascinating reading. Many references are made therein to the important role of the honey bee and most of these are recorded in a monumental work of 546 pages by Herbert F. Schwarz, Research Associate of the American Museum of Natural History in New York in its Bulletin Vol. 90, published in 1948 entitled. "The Stingless Bees of the Western Hemisphere". Not only is this a profound and detailed scientific treatise of this subject on which Mr. Schwarz has become a renowned authority, but also almost everything of interest written by the historians, archeologists, and

anthropologists of this region about the stingless bees, in the land of the Maya, is here recorded.

In these recordings he tells of Cortes, at the time of his conquest of Montezuma and the Aztecs, writing that honey and the wax of these bees was being exacted as yearly tribute from subservient tribes. He has recorded its use as a food cooked with corn and squash seeds and its being a component part of almost every remedy for every ailment of the Maya. He tells how it was made into a fermented drink as in other parts of the world and that it was used in many of the important rituals of which their lives were full. Yes this honey bee and its small crop was of great importance to the Mayan civilization.

(to be continued)

Fig. 5 Aniary of Yucatan today exclusively of stingless bees.—

Photo by Miss Dorothy M. Schwarz.

Another "Easy Does It" Idea

By A. K. Hibbard, Lorain, Ohio

For some reason or other I find that the standard supers when fully loaded with honey seem a lot heavier to handle than they did when I was younger. In fact, I read with considerable interest Mr. J. W. Admire's article on page 596 (October issue) entitled "Easy Does It", and I was beginning to agree with those who say that beekeeping is not an old man's job.

However, this past season I made a little device that took the hard work out of my most troublesome job, that is, the lifting off of the fully loaded supers at extracting time. Sixty pounds, more or less, is not too troublesome for me to lift from the ground into a wheelbarrow or the trunk of my car, but to hoist it from a shoulder-high position and lower it to the ground is just fun for a younger man, but, well — I **prefer** some other kind of exercise.

My solution of the lifting problem is no comparison to the complete labor-saving method which Mr. Admire uses, and my idea has probably been used by hundreds of other beekeepers, but no one had told me.

The necessary tools are a 10-inch wide board five or six feet long with strapiron hooks at each upper corner just sufficient to hook the board to the hive body and prevent slipping off. I used small flat head stove bolts to fasten the hooks to the board. This board makes an easy slide or ramp down which the loaded super is slid to the ground. The other necessary tool is a two-foot long piece of broom-stick which is slipped under the loaded super. By flattening at one end about two inches of the broomstick into a wedge shape it is then easy to insert when with the hive tool the super is lifted just a little.

By sliding the broomstick midway under the full super the 60-pound load rolls over to the ramp with scarcely any effort,—a finger-tip job. It then slides with a guiding hand to the ground or to a wheelbarrow.

Since devising this ramp idea and the broomstick roller I no longer dread the lifting job no matter how fully loaded the supers may be. Aside from the oldsters like myself these labor-saving ideas might contain a hint for some of the "teen age boys", or even some of the girls!

Ecological Studies on Overwintered Honey Bee Colonies

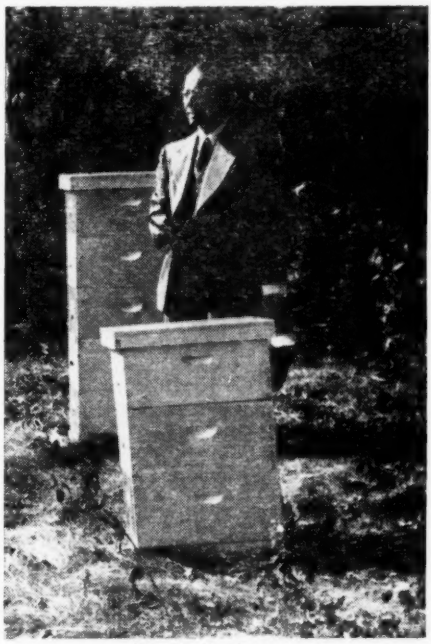
By C. L. Farrar
Bureau of Entomology & Plant Quarantine,* Agr. Res. Adm., U.S.D.A.

The honey bee, **Apis mellifera L.**, colony exists as a unit organism in which the individuals — queen, workers, and drones — serve as living cells of the whole. The individuals are subject to more or less constant replacement. The honey bee in its colony organization has the widest possible range of climatic adaptability of any insect species. It survives in nature from the warm tropics to the northernmost regions that permit a pollen and nectar producing flora adequate for its food supply. The honey bee is adaptable to seasonally extreme climatic conditions that may be either humid or arid, and temperatures may exceed 120° F. or 50° below zero.

Environmental factors important to the honey bee colony are those that influence the flora. Of course, weather conditions must be favorable for flower visitations by the bees during periods when pollen and nectar are yielded in copious quantity. The natural instinct of honey bees is to store large food reserves for use during dearth periods, whether they be from rain, drought, or extreme cold.

Throughout history man has utilized the productive capacity of honey bees. Sometimes his methods have been destructive, but in general he has treated the honey bee as his friend by anticipating its food requirements and providing some measure of shelter. The honey bees' instincts are inherently wild so bees are not subject to domestication. The success that man has attained in making honey bees more productive has been the result of making a close study of their normal behavior and then adapting practices in harmony with their habits to capitalize on their great industry. Man has made mistakes, but the tremendous reproductive capacity of honey bees has enabled the species to survive and increase.

The overwintering of honey bee colonies has been considered one of the most difficult problems of management. Winter losses, based on the number of colonies that do not survive, may average 15 percent. The reduced productivity of colonies that do survive under poor wintering conditions may exceed by several times the apparent loss.



Dr. C. L. Farrar

The Bureau of Entomology and Plant Quarantine, many state experiment stations, and European research laboratories have conducted numerous fundamental and applied experiments on wintering. An analysis of the work done strongly suggests that winter losses can largely be attributed to colony standards and methods rather than to climatic extremes. The control or recognition of only single variables in many experiments and observations on wintering explain the frequent contradictions in results or viewpoints.

Winter Hive Temperatures.—The function and need for hive insulation have been tested and debated for more than 100 years. Hive and

*In cooperation with the Wisconsin Agricultural Experiment Station.

Table 1.—Minimum hive temperature outside the cluster area.

Hive No.	Date	Interspace No. 1	2	3	4	5	—	7	8	9
4 (unprotected)	Jan. 29	10	7	9	10	14	—	12	19	12
	30	—1	2	—1	—3	—1	—	12	20	16
8 (packed)	29	10	12	12	18	14	—	14	14	13
	30	6	7	7	13	11	—	10	9	8
9 (packed)	29	—3	—2	—2	—2	—2	—	—1	—1	—2
	30	—12	—13	(not recorded .....)						

cluster temperatures have been investigated by numerous research workers in the United States (Corkins & Gilbert 1930; Farrar 1934, 1943, 1945, 1946, 1949; Gates 1914; Phillips & Demuth 1914; and Wilson & Milum 1927) and foreign countries (Armbruster 1924; Budel 1948, 1950; Hess 1926; and Himmer 1926, 1927). The conclusions drawn have been influenced by the instruments used, the class of colonies (strength and amount of hive equipment), the geographical climates, and, to a certain extent, the general concepts in bee management prevailing at the time the studies were made. However, an analysis of all the data published reveal few major points of conflict regarding temperature relationships.

The Bureau of Plant Industry, Soils, and Agricultural Engineering, in cooperation with the Bureau of Entomology and Plant Quarantine and the University of Wisconsin, is currently conducting experiments on electrical heating of hives. Instruments for automatically recording temperatures from 1600 thermocouples in the experimental hives permit us to present here a limited amount of pertinent data from the unheated colonies used as checks in the hive-heating experiments.

The check colonies used included (1) unprotected hives, (2) hives wrapped with **sisalkraft** paper, and (3) hives packed with 2 inches of balsam wool. The packed hives were first wrapped with sisalkraft to provide a moisture barrier before applying the insulating balsam wool batts. These were then protected by an outside wrapping of sisalkraft paper. Eighty thermocouples were distributed in each of three shallow hive bodies containing frames 6.25 inches deep, or a total of 240 temperature points in each colony. Eight thermocouples were located in eight comb interspaces to form a transverse vertical grid with points located 1 inch apart from top to bottom of the three-story hive. In interspace 6 a horizontal grid of 16 points 1.12 inches apart was placed between the centers of combs 5 and 6 in each hive body.

Between January 28 and 31, 1951, the mean hourly temperature was —13.6°F. over a 65-hour period of subzero temperatures. On January 29 the mean hourly temperature was —15° (min. —19°, max. —9°), and on January 30 the mean was —16.75° (min. —36°, max. —2°). The extreme temperatures recorded within the hives about 8 a. m. along the lower edge of the bottom set of combs (outside air temperature January 29, —19°; January 30, —27°) are shown in Table 1.

The temperatures (° F.) recorded on January 30 for interspace 7 (between combs 6 and 7, colony 4) and interspace 5 (between combs 4 and 5, colony 8) from top to bottom approximately through the center of the clusters are shown in the following tabulation:

Colony 4 Interspace 7	Colony 8 Interspace 5
Top Hive Body	
47	77
54	86
62	89
70	89
83	89
85	89
87	89
Center Hive Body	
90	92
91	92
91	92
92	92
92	90
91	87
89	83
Bottom Hive Body	
85	73
85	61
75	47
67	——
44	31*
——	21
24*	16
12	11

* Temperatures outside the cluster area.

The size and position of the cluster determine the temperature in any portion of the hive for a given outside temperature. The occurrence of subzero temperatures in both packed and unprotected hives shows that the bees do not attempt to heat the hive space unoccupied by the cluster. The lower temperatures recorded in packed hive No. 9 than in unprotected hive No. 4 are due partly to the position of the cluster in hive No. 9 and to the fact that snow extended around the bottom hive body of No. 4 but not around No. 9.

Table 2.—Relationships between winter honey consumption and yields the next season.

Consumption Based on Yields				Yields Based on Consumption			
Yield	Number of Colonies	Avg. Consumption Oct. to April Pounds	Avg. Yield Oct. to Oct. Pounds	Consumption	Number of Colonies	Avg. Consumption Oct. to April Pounds	Avg. Yield Oct. to Oct. Pounds
1947*	1949*		1949†	1950†			
Below avg.	22	45.5	103.5	Below avg.	23	43.0	159.1
Above avg.	29	54.8	241.1	Above avg.	28	57.4	208.5
Difference		9.3	137.6			14.4	49.4
Below avg.	27	63.8	94.3	Below avg.	29	56.7	147.5
Above avg.	30	68.7	197.8	Above avg.	28	76.3	150.0
Difference		4.9	103.5			19.6	2.5
Below avg.	81	49.4	55.6	Below avg.	83	45.1	85.5
Above avg.	82	50.8	113.1	Above avg.	80	56.3	83.5
Difference		1.4	57.5			11.2	—2.0
Below avg.	75	50.5	110.3	Below avg.	83	43.9	172.6
Above avg.	70	51.6	229.5	Above avg.	63	60.6	172.2
Difference		1.1	119.2			16.7	—0.4
Below avg.	205	51.3	85.8	Below avg.	217	46.0	134.5
Above avg.	211	54.2	181.4	Above avg.	199	60.6	138.5
Difference		2.9	95.6			14.6	4.0
Increased summer gain	211	—	98.5		199	—	18.6

*Colonies used in single and two queen management tests.
† Single-queen colonies used in testing stock lines.

Under falling temperatures the packed hive cools off more slowly than does the unprotected hive and, conversely, under rising temperatures it warms up more slowly. Even with the restricted hive entrances, the exchange of air through a packed hive is large in proportion to the space unoccupied by the bees. For insulation to be effective, it would have to be placed around the cluster, rather than around the hive, and in effect shut off all convection air currents between the warm air inside and the cold air outside.

The surface temperature of the cluster is between 43° and 46° F. As the air temperature around the cluster decreases, there is a concentration of bees in the outer area of the cluster, forming an insulating shell 1 to 3 inches deep, to retain the heat generated by the more active bees inside. The cluster temperature is regulated under falling temperature by contraction of the cluster and raising the temperature inside by increased activity of the center bees. A balance is maintained between the internal temperature, the diameter of the cluster, and the depth of the insulating shell, so that heat conducted from within will equal the small amount of heat radiated from the surface at approximately 45°. It is easy to understand why small populations have greater difficulty in maintaining this balance than full-strength colonies.

Food Consumption.—Starvation is the major cause of winter losses. It may result from inadequate stores or from their improper position and also from populations too small to maintain contact with their stores. Management practices prior to the winter period may influence all three situations. Maximum food requirements, rather than the average, must be satisfied.

A theory of conservation of bee energy and honey stores prevailed for many years. Hive insulation or cellar wintering was supposed to conserve bee energy and thereby conserve honey stores. It is sometimes possible to carry a small colony through the winter on less than 10 pounds of honey. Spring feeding was, of course, a recognized necessity. Minimum winter stores at different periods were stated to be 20, 30, 45, and 60 pounds of reserve honey. We now find it better to leave 90 pounds of honey, because the best colonies may use nearly that much, and it eliminates the necessity of spring feeding.

Thirty pounds more honey than the average colony uses is cheap insurance, compared with the risk of losing the best colonies because they have even 1 pound too little. Colonies in an apiary showing average consumption of 55 pounds usually have a range of 30 to 80 pounds. An understanding of the importance of pollen in wintering has emphasized the need for larger honey reserves. Similarly, the utilization of more productive bee stocks has raised food standards.

The relation between winter consumption and colony yields is shown in Table 2. The average winter consumption was calculated for 416 colonies, based on those yielding more and those yielding less than the average and on the average

yields of those consuming more and those consuming less than the average.

The weighted means show that colonies yielding more than the average produced 95.6 pounds more surplus (from October to October), although they consumed 2.9 pounds more honey (from October to April), than those yielding less than the average. Their difference in gain during the active season would equal 95.6 plus 2.9, or 98.5 pounds. The weighted means show that colonies consuming more than the average produced 4 pounds more surplus while consuming 14.6 pounds more honey, and gained 18.6 pounds more honey during the active season than those consuming less than the average.

The actual weight differences are not important, because of variation in honey flows, productivity in stock, number and time of queen supersedures, occasional progressive robbing between colonies, and the time when weights are determined in the spring. It is significant that, on the average, high consumption results in greater net yields and a still greater advantage if productivity is measured in terms of pollination. Since pollination is directly proportional to the number of flower visits, the high summer gains become important.

The consumption values are influenced by the time when weights are taken in the spring. The above data were taken for the approximate period October 15 to April 15. In 1944 three unprotected colonies that were fed supplemented pollen cakes showed an average consumption of 22.9 pounds between October and May 25, which was 11.5 pounds less than three packed colonies that did not receive pollen supplement. This does not mean that the packed colonies consumed more honey during the winter. The unpacked colonies consumed more honey, but they made greater gains from an early honey flow in May because of their more advanced condition.

A summary of management standards favorable to good wintering under all climatic conditions may be enumerated as follows: (1) Unrestricted brood rearing to provide a normal population of 10 pounds of bees; (2) 45 pounds of honey in dark combs in the top hive body plus 20 to 30 pounds in each of two lower hive bodies; (3) 500 square inches of pollen reserves, or provision made to supply supplemented pollen cakes during March and April and such other period when pollen collection is below colony requirements; (4) freedom from Nosema infection or other disease; (5) provision of an auger-hole entrance in the upper hive body and a reduced bottom-board entrance; and (6) the location of hives in full sunlight and where they are protected from wind and provided with good drainage of air away from the hives.

The severity of climate and time of pollen and nectar resources influence to what extent one may deviate from the standards given. Snow coverage is not harmful. The upper auger entrances permit flight when the snow melts from above the hives, even should the bottom entrances become clogged. Small colonies or nuclei should either be united to normal colonies or wintered above these with a screen division board separating the upper and lower units. When wintered above, the nucleus should contain close to 45 pounds of honey in one hive body.

The honey bee colony is adaptable to a wide range of climatic conditions where these are favorable for pollen and nectar producing plants upon which the bees depend for food. The normal colony forms a cluster within its area of food stores. It produces and regulates its heat energy within well-defined temperature gradients (43° to 93° F.), independent of the air temperature surrounding the cluster. Insulation around the hive slows up the rate of temperature change, but in a cold climate it does not prevent subzero temperatures within the hive. Colonies that consume more than the average amount of stores produce the greatest yields.

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(Continued on page 123)

February Fare

By Mrs. Benj. Nielsen
Aurora, Nebraska

Honey snow cake with honey cereal chocolate crunch. —Photo Courtesy Kellogg Co.

This is the month of holidays, an excuse for parties, permitting imagination to run riot with colorful foods with eye as well as taste appeal. Patriotic party schemes are a joy to carry out—red and white easy to achieve, the blue, however, as applied to foods, leaves something to be desired. So it's a good idea to work this one of the trio into the decorative scheme. Blue stars, in assorted sizes, gummed or cut from deep blue construction paper, scattered hit and miss over snowy linen, carry out a most attractive, easy-to-do blue note. Or, long blue tapers tied with red and white ribbons introduce the blue note of the patriotic theme.

So whether you are party-minded or merely would like an easy special for certain holidays, here are the recipes to add cheer to biting, drab, wintry days.

Honey Snow Cake

Two eggs, 1 teaspoon vanilla flavoring, ½ cup sugar, ½ cup honey, 1 cup sifted cake flour, 1 teaspoon baking powder, ¼ teaspoon salt, ⅓ cup milk, and 2 tablespoons butter.

Beat eggs with vanilla until thick and creamy. Gradually add sugar, then the honey. Sift together flour, baking powder, and salt; add to beaten eggs. Heat milk and butter to boiling point and add. Spread batter in greased pan. Bake in moderate oven, 350 degrees F., 30-40 minutes. While still warm, spread Chocolate Crunch on top and sides of cake.

Honey Cereal Chocolate Crunch

Six ounce package semi-sweet chocolate bits, ⅓ cup honey, and 1½ cups oven-popped rice cereal.

Melt chocolate over hot water. Add honey and mix well. Remove from heat. Add cereal and stir until well coated with chocolate.

Honey Cherry Rice

One No. 2 can pitted tart cherries, ¾ cup heavy cream, ⅓ cup honey, ½ teaspoon vanilla, and 1½ cups cooked rice.

Drain cherries. Whip cream until stiff; beat honey in gradually; add vanilla. Fold in rice and chill. Fold cherries into chilled cream mixture and serve in sherbert glasses with Cherry Sauce.

Honey Cherry Cake

Two cups canned red cherries, 1½ cups sifted flour, ¼ teaspoon salt, 3 teaspoons baking powder, ⅓ cup sugar, 2 eggs, separated, ⅓ cup honey, ⅓ cup milk, 1 teaspoon vanilla, and ½ cup shortening, melted.

Drain cherries, saving juice. Sift flour, salt, baking powder and sugar together. Beat egg yolks and combine with milk, vanilla, and melted shortening. Add to flour all at once and beat until smooth. Fold in cherries. Beat egg whites until stiff but not dry, add honey gradually and fold into mixture. Bake in greased pan in moderate oven, 350 degrees F., 50 minutes. Serve hot or cold with hot Cherry Sauce.

Honey Cherry Roly-Poly

One recipe for shortcake biscuits and 2 cups canned cherries, drained.

Roll dough lightly on floured board making an oblong about ½ inch thick. Spread with cherries and roll, sealing edges well. Place in buttered pan, cover tightly and steam for 1¼ to 1⅓ hours. Serve with Cherry Sauce.

Honey Cherry Sauce

One-fourth cup butter, 2 tablespoons flour, 1 cup red cherry juice, 2 tablespoons lemon juice, ¼ cup honey, and 2 drops almond extract.

Melt butter, blend in flour, add cherry juice and cook until sauce thickens, stirring constantly. Add lemon juice, honey, and almond extract. Makes 1¼ cups.

Mr J. Blickensderfer of Guernsey, Sask., and his apiary near a fine stand of white sweet clover. Bees and clovers are benefited.—Photo sent by R. M. Pugh, Regina, Sask.

The Sugar Concentration of the Nectar of Some New England Honey Plants

By Dr. F. R. Shaw

Associate Professor, Dept. of Entomology, University of Mass., Amherst, Mass.

Over the past several years, I have been making observations on the more important nectar and pollen plants in New England. Such observations included the time of blooming, the relative abundance, and whether the bees obtained pollen, nectar, or both from the plants.

This past year as a result of a research grant, I was able to purchase a Bausch & Lomb refractometer thus making it possible to determine the sugar concentrations of nectar. This paper consists of a preliminary report of investigations of some of the honey plants of New England.

Bees were collected from blossoms of the plants under study and were killed in a cyanide bottle. The head of the bee was clipped off. Then the thorax was gently squeezed. If a copious drop of nectar oozed forth, it was placed on the prism of the refractometer and the sugar determination made. In no case were fewer than five observations made. The data obtained are presented in tabular form.

Table I

Plant	Sugar concentration of nectar in percent Max.	Min.	Ave.
Dandelion Taraxacum officinale Weber	56	26	41.8
Japanese Barberry Berberis thunbergii Dc.	47	18	33.9
Apple (var. Sharon) Malus sp.	63	42	53.6
Cherry (var. Morello) Prunus cerasus L.	47	30.5	39.3
Honeysuckle Lonicera sp.	48	30.5	35.9
Winged Euonymus Euonymus alata Reg.	41	32	37.4
Dutch white clover Trifolium repens L.	50	27	37
Bittersweet Celastrus scandens L.	44.5	33	36.7
Privet Ligustrum vulgare L.	31	18	23.5
Vetch Vicia cracca L.	52	33	43.5
Alsike clover Trifolium hybridum L.	46.5	26.5	39
Red clover Trifolium pratense L.	33	24	29.5
Staghorn sumach Rhus typhina L.	53.5	38.5	47.2
Yellow sweet clover Melilotus officinalis (L.) Lam.	57	38	49.3

European Linden Tilia europea L.	58	54	56.1
White sweet clover Melilotus alba Desr.	48	36	41.8
Milkweed Asclepias syriaca L.	30	20	25.2
Buckwheat Fagopyrum esculentum Moensch	48.5	41	45.1
Vipers' Bugloss Echium vulgare L.	48	37	41
Smooth sumach Rhus glabra L.	58.5	42	48.5
Spreading dogbane Apocynum androsaemifolium L.	28	24	26.6
Alfalfa Medicago sativa L.	33	27	29.3
Meadow-sweet Spiraea salicifolia L.	26.5	19	23.3
Buttonbush Cephalanthus occidentalis L.	36	35	35.5
Sweet pepper bush Clethra alnifolia L.	34	19.5	26.2
English Ivy Hedera helix L.	30	17	26.2
Burdock Arctium minus Bernh.	34	20	30.1
Flat-topped goldenrod Solidago graminifolia (L.) Salisb.	40	22	29.8
Hairy goldenrod Solidago rugosa Mill	48	27	37.9
Lady's thumb Polygonum persicaria L.	50	42	45.15
Winter squash Cucurbita maxima Duchesne	38	18	29.7
Jewelweed Impatiens biflora Walt.	33.5	26	30.8
Boneset Eupatorium perfoliatum L.	28	21	21.3
Joe Pye Weed Eupatorium purpureum L.	39	27.5	33.3
Japanese Bamboo Polygonum cuspidatum Sieb & Zucc.	35.5	28.5	31.9
Solidago speciosa Nutt.	29	26	27
Aster			
Aster Novae-angliae L.	36	26	31.6
Aster vimineus Lamb.	55.5	51.5	53.6
Aster acuminatus Mich.	46	31	37.3
Aster prealtus Poir	36	21	30

To summarize the data the plants were grouped into three catagories.

Group I

Plants having average sugar concentrations of nectar above 40%.

Apple, European linden, **Aster vimineus**, Dandelion, Vetch, Staghorn sumach, Sweet clover, Buckwheat, Vipers' Bugloss, Smooth sumach, and Lady's thumb.

Group II

Plants having average sugar concentrations of nectar of 30 - 40%.

Japanese barberry, Honeysuckle, Morello cherry, Winged Euonymus, Dutch white clover, Bittersweet, Alsike clover, Buttonbush, Burdock, Hairy goldenrod, Jewelweed, Joe Pye Weed, Japanese bamboo, **Aster Novae-angliae, Aster acuminatus, Aster prealtus.**

Group III

Plants having average sugar concentration of nectar below 30%.

Red clover, Milkweed, Privet, Alfalfa, Spreading dogbane. Sweet pepper bush, English ivy, Flat-topped goldenrod, Winter squash, Boneset, and **Solidago speciosa.**

In general this grouping appears to correspond with the attractiveness of the plants to the bees. Dandelion, smooth sumach, **Aster vimineus**, and sweet clover were highly attractive to bees. One exception appears to be milkweed which averaged only 25 percent sugar but was very attractive to bees.

Although the data represents only one year's work, I feel that it should be published since similar data for the New England area is not available. It is hoped that in the future we can determine some of the factors which cause variation in the amounts of sugar present. Among such investigations, it is planned to make observations throughout the day of a given plant or group of plants to determine any correlation between the time of day and the nectar concentration.

Temperature and relative humidity were observed during the course of the present studies but there seems to be no simple correlation between either of these factors and sugar concentration. Possibly a multiple correlation exists and we hope to determine this. Other studies will include sugar concentrations of nectar from the same species under what seem to be unfavorable and favorable conditions for the plant.

* * * * *

An addition:—I have consulted with the builder of the hive loader referred to in the December issue, Oliver Hill, and he advises that he is using 8 volts and has two additional batteries connected in parallel to supply a reserve of power. This gives him all that he needs for several loadings and since the batteries are connected with his truck generator, they are recharged while the truck is on the move. Some beekeepers prefer to use an auxiliary generator, or the power of the truck, to provide power for the hoist. Both are feasible but Hill finds that batteries are entirely sufficient and cheap to install.—J. E. Eckert.

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Live and Learn

By Propolis Pete

Last month I ended my piece with a crack "Why don't somebody invent a medicine that would make beekeepers sell their honey for what it is and what it is worth".

Naturally there can be no such medicine, but the idea is good anyway. For instance, the farmer's cooperative here in town is selling a nice light honey for $1.35 for a 5-pound pail. I understand that it is not moving too fast. I sold my honey for $1.75 for a 5-pound jar, have been sold out since early October, and I am still getting calls for honey and making bad friends by not having any to sell.

I can see at least half of you rarin' up and shouting "Freavensake why don't you buy, bottle, and sell to keep your trade?" But not me, brother. Think I want to be stuck with my whole crop next year? This honey is too good, and I don't want to educate the folks around here. My honey is darker, but I must say that it has a "fruity" flavor that has an appeal that is somewhat different from the standardized clover. Incidentally, speaking of special flavors, that cat flavor that came from the privet has aged out of the samples that I held back for testing. That will help my peace of mind in future years when the privet is running high.

The can manufacturers aren't going to like this, but how can you coax anybody to try honey in a tin can when they can't see what they are getting? When a person is sold on honey, and goes out to buy it deliberately, or when it is being sold unseen, cans have a lot more practicability than jars. Part of their ugliness can be overcome by dressing up the can, such as by using a suitable label, or, by having the whole can lithographed the way they do coffee cans or similar food containers. Such cans would very likely be far too expensive in the comparatively small quantities that beekeepers would use. To bring the cost of a snazzy lithographed can down to the beekeepers level, they would have to be made by the millions.

Sometimes during these winter months when we always do the right thing at the right time, and the bees always do what the books say they will do, we let our fancies wander far away. We think of such things as what our crop would be if every colony produced like the best. We think how wonderful it would be if all the other beekeepers got together and ran a million-dollar advertising campaign. Notice, I said "all the other beekeepers". That is one of the reasons why we can't run national advertising as the orange and apple people do. Nearly everybody is waiting for the other fellow to pay for it.

I'd like to bet that if some angel would underwrite a national campaign for honey, you could get a dollar a pound for it, and still not produce enough to satisfy the demand. I recall some years ago, somebody ran fairly large advertisements in the New York papers, advertising a Cuban honey that was sold through the food departments of some of the big stores. The price charged was $1.00 for the pound size, or $2.50 for the large "ECONOMY" size of 3 pounds. This honey was the color and flavor of crankcase d r a i n i n g s. It would cure anything from falling hair to ingrowing toenails. I know, because the shipping clerk in the place where I worked at that time bought a bottle and brought it in with the circular that was wrapped around the bottle, like they do with the patent medicines. To tell the truth, the whole thing was only a flash in the pan, because it was all over in a couple of weeks. Whether they got rid of the stuff or whether they were forced to stop on account of misrepresentation, I don't know. But the point is that they sold honey at fantastic prices just by coupling the magic of the word "honey" with extensive publicity. True, one of the reasons it flopped might have been that in spite of the tremendous sales, the cost of selling might have been too great, but that would have been a lot less if they had a product that would have been good for repeat orders. When a million dollars is spent advertising coffee, it isn't the first sale that they are after. It's the hundreds of pounds that will follow the sale of the first pound.

People who make their living producing honey generally gripe because they don't get more for their efforts. They have a right to gripe, because after you take the romance out of it, beekeeping is hot, hard,

(Continued on page 121)

Second Glances

C. M. Isaacson

That first page of Gleanings (pictured on the January cover) is truly a historic one. From a very modest and unassuming beginning on that January day of 1873, it has reached and left its influence in every part of the world. There are several sentences that go far in explaining its success and which have been a part of its policy ever since. Note especially "we trust no one will hesitate to give any facts from experience because they may tend to overthrow any particular person and hobby"; and that very important "please don't be hasty or prematurely positive". I repeat them, especially the last, because they are worthy of being kept in mind always—they are the essence of what has made Gleanings what it is today.

Improvement of beekeeping as a whole has always been a principle kept high by Gleanings' editors, as witness down through the years its force put behind campaigns such as the passage of the Pure Food Act; the fight later on against the corn sugar lobbyists; insistence on the value of honey as a food; the benefits from bees as pollination agents; etc. (pages 9-11). I might add others such as its admonitions against the small hive and its "contraction" advocates; its education of beekeepers as to the very real need for a superabundance of honey and pollen for wintering, and many other like things.

Beekeeping in Canada has grown with Gleanings, one might say (page 12). Many Canadian beekeepers helped not only with their own cooperative efforts and beekeepers' organizations but also in the growth of Gleanings through their writings from experience. Morley Pettit and J. L. Byer, to mention two of the most well-known to Gleanings readers, were among the many whose names are familiar to all of us. Canadian beekeeping is advanced and modern, and Gleanings has had a considerable part in building it thus.

Gleanings was begun with and from enthusiasm, and this same spirit has carried on to the present day. It has been a big factor in keeping it very readable and full of interest, for enthusiasm always awakens more of the same (page 16). It was very gratifying to me, and I know to beekeepers everywhere, to see once more an article written by E. R. Root. To change over a popular political title a bit, to a good many of us, Mr. Root is almost "Mr. Beekeeping", so well-known is he, and so much has he contributed to the industry as a whole. His mention of riding a bicycle often a hundred miles a day to visit with and keep in touch with beekeepers' problems is just one instance to show his very real concern in constant progress and improvement.

The 80 year life span of Gleanings has been a short span in recorded history but a long one in accomplishment and encouragement of individuals in its industry (page 18). One family, the Roots, with not only individual genius of their own, but also with that invaluable ability to pick men of like brilliance to work with them, have left a lasting contribution to beekeeping, both through the columns of Gleanings and their own personal efforts. The ABC and XYZ of Bee Culture alone (which has been largely the work of E. R. Root) has been a sort of beekeeping bible to countless people everywhere in many lands. And during the time when many adverse influences were pulling the industry downwards, Gleanings did a very large part in bringing about saner practices and better beekeeping. With George Rea, let us all say "May it long continue to live and serve!"

That the writings of beekeeping's leaders have been preserved for us and for the future is one of the biggest contributions of Gleanings—and its companion, the ABC and XYZ of Bee Culture (page 21). The progress of our industry is recorded, all the trials and "birth pangs" out of which our present beekeeping has emerged. The list of inventions, research, beneficial practices, which have become common knowledge through Gleanings is a very long one. Its 80 years have truly been years of progress.

Service has been a keyword throughout the lifetime of Gleanings in Bee Culture (page 22). It has been expressed in many ways, and not the least has been the constant use of its columns for discus-

(Continued on page 126)

Controlling Flight Distance of Honey Bees with Nitrous Oxide (Laughing Gas)

By George Hundsdorfer, Seattle, Washington

The problems of the beekeeper who uses his bees as pollinators in orchards and in alfalfa, red and Ladino clover seed production, are manifold and often very discouraging. Insecticides wrongly applied or poorly timed will kill his field bees and very often this will happen more than once in a season and many beekeepers lose all or just give up.

Alfalfa and Ladino seed production in Eastern Washington, Utah, and part of California is a very important business often yielding 1300 to 1700 pounds of seed per acre. The soil in this area is of volcanic origin, rich in minerals, and requires only water and bees and more bees.

One acre of alfalfa, for instance, can support three to five colonies of bees and average 80 pounds of honey each, but to get top seed production it requires eight to ten or more colonies and they should be moved and replaced with other colonies about three times during blossom time. It sounds silly, but it is a fact, bees once localized would rather fly a long ways to get nectar from sweet or other clover than stay home and pollenize alfalfa. When a bee sticks its head into an alfalfa flower, it releases the spring loaded keel petal and the bee gets a sticky load of pollen in the face and it doesn't like it.

In order to keep the bees in the field or orchard where they are supposed to work and reduce the number of colonies needed and in order to protect the bee colonies from poison spray by keeping them close at home in their hive for hours at a time, the writer hereby suggests the use of Nitrous Oxide. Let us see how.

It is a well known fact that bees placed in a new location will not fly very far the first day and it requires 10 to 12 days to get oriented enough to fly any great distance. For instance, a beekeeper places five to eight colonies of bees per acre in the center of the field and every two weeks gives them four minutes gas treatment. This should be done early in the morning or late in the evening when all the bees are in. This treatment will cause the bees to lose their sense of location, they will start anew as if they had just been placed in the field. A ten-acre field with 30 to 40 colonies, gas treated every two weeks, will fence the bees in to fairly close limits. A 40-acre field will not need the gas treatment as often. The beekeeper can determine the best time limit.

Let us assume the field has to be sprayed with a poisonous insecticide. The beekeeper will get a short notice and if he arranges with the applicator to spray after he has gassed the bees, he will have from two to at least six hours where his bees will stay close to their colony. This should be done early in the morning when all the field bees are in. The writer's experience is that after a gas treatment, the bees stay close to the colony for nearly a day. By this method, most of the field bees will be saved and only a day of activity is lost.

In the December 1952 issue of this magazine, a complete outline of application of Laughing Gas was published and should be carefully studied by any one trying to use this method.

However, this problem here is different, we are dealing with a large number of colonies, a lack of time and also ammonium nitrate which can be applied only in small amounts in the smoker.

First obtain a quantity of ammonium nitrate (same as used in commercial fertilizers). Always be sure to keep it in a small container and in a cool place.

Next step is to solder a funnel-like extension on the smoker cover as shown in the December issue. Have a small amount of evenly burning fuel in the bottom of the smoker; then sprinkle two to four or six teaspoons of ammonium nitrate on top of the fuel according to the size of the smoker. Laughing gas is produced by **gently heating** ammonium nitrate in your smoker **not burning it** with lots of heat. Evenly pump four to six strokes in the entrance and then close the entrance immediately for two to ten minutes only. The gas from the smoker is not hot but is soon used up and you have to work fast to gas as many colonies as possible. A crackling noise in the smoker will

(Continued on page 125)

Uses of Honey and Other Bee Products

By Dr. Eva Crane, Editor of Bee World, London, England

For many centuries honey has been believed to have healing properties, although there is far less real evidence that this is so than some of its advocates would have us believe. Some evidence has been brought forward within the last few years of its bactericidal properties and its value as a dressing for wounds. One interesting method of preparing eye ointment has been developed: a colony is fed with honey mixed with an infusion of eucalyptus leaves, and the honey stored by the bees is subsequently extracted. Honey to eat is recommended for chorea and various other diseases, and it is used in the cough cure Melsanin. Honey has also been prepared in a form for injection under the name M2 Woelm, and this has been shown to have effects on the heart and circulation of both man and animals which could not be reproduced with a solution of similar concentrations of sugars.

Other products of bees have also been investigated from the medical point of view. Propolis has been shown to kill bacteria, and pollen is regarded, on account of its vitamin content, as a new raw material for the pharmaceutical industry; it has also been found to reduce the incidence of tumors in mice. Bee venom, used on the Continent for many years as an injection for rheumatic and other complaints, has now also been shown to inhibit the growth of certain tumors. A young commercial beekeeper has described how gradually increasing injections of diluted bee venom were successful in making him immune to bee stings after he had become allergic to them. Two new methods of preparing the venom have been described, and also a new property of both wasp and bee venoms which as far as we know has not been applied—under some circumstances they behave similarly to tear gases.

Several new foodstuffs with honey as a main constituent have been developed in the United States. One is a "smooth, non-sticky fruit-honey spread" made from honey and fruit juice or puree, which can be stored without deteriorating; others are dried or condensed mixtures of milk and honey which can be stored and used when wanted, in baking and in preparing infant foods. The preparation of "honey butter" is also described. Unsaleable thin extracted honey has been disposed of profitably by feeding it back to the bees and getting them to fill sections with it—one colony fed 285 pounds of such honey yielded 187 saleable sections. The use of honey for cooking is certainly not new, but individual recipes sometimes are—some interesting ones are given in a French article. The history of the uses of honey has been recorded in a book published in 1949.

Apart from its medical uses, pollen collected by bees is becoming important commercially for applying to fruit trees in order to increase pollination. One hindrance to this development was the fact that pollen stored by bees would not germinate. It has now been found that if bee-collected pollen is quick-frozen and stored in ice, or if it is suspended in syrup and then plated on agar containing sugar, it remains capable of germination. A study has now been made of aeroplane and bomb methods of applying the pollen to the trees.

Old and new uses of beeswax are set out in a recently published book on the subject.

Honey, pollen, wax, propolis, and venom: these form the complete set of bee products used by man so far; the bees themselves have, however, been used from very ancient times as a weapon of war, and a new reported wartime use for them is the transport of microscopical documents across enemy lines.

L. L. Andrews Retires

Our readers will regret to learn that L. L. Andrews, our veteran reporter of Southern California for the North, East, West, and South Department, ever since its inception in Jan. 1919, wishes to terminate his writing for this department. We wish to compliment Mr. Andrews on his long and faithful service to Gleanings and our industry during the years. Mr. Andrews has had a long experience in beekeeping and has watched our industry develop during many years. Our best wishes to Mr. Andrews in the future.

A Talk to Beginners

By M. J. Deyell

No Royal Road to Success in Beekeeping

It is always an inspiration to read from the late Dr. C. C. Miller's book "Fifty Years Among the Bees." Dr. Miller, coming from a large family, had to make his own way and finally, after some years of hard work, paying his own way through college, secured his M.D. degree. He practiced medicine for a short time but found that his health would not permit him to continue. His wife captured a swarm of bees while he was in Chicago and when he returned home the bees were in a barrel. It was then and there that he became absorbed in beekeeping. He kept bees on the side for 11 years and had his ups and downs. His principal difficulty was in wintering bees.

Dr. Miller gave up a $2500 job as a traveling salesman to engage in school teaching at $1200 a year so that he could be near his bees. A few years later, after some good and bad years, he launched out into beekeeping as a sole source of income and became one of the world's best beekeepers. Like many others, he learned beekeeping the hard way.

Once a Beekeeper Always a Beekeeper

Generally speaking, this is true. However, there are a few exceptions. I have heard recently of some beekeepers selling out and going into some other kind of business. But once beekeeping gets into one's blood, it is hard to get away from it—at least, I have found that to be the case.

Our industry has its ups and downs but we cannot get away from the fact that the beekeeping industry is an important and essential branch of agriculture.

It is possible for those who do not rely on bees as a sole source of income to maintain a few hives of bees as a side line in most sections of the country. However, those who undertake beekeeping on a commercial scale should see to it that their bees are in locations that are dependable for sources of nectar and pollen. In some parts of the country migratory beekeeping is practiced. This entails considerable time and labor but with intelligent apiary management the extra expense is usually justified in results

Jack Deyell

attained. Commercial beekeepers should really have a back-log of surplus cash to tide them over a possible poor season.

Snow a Protection for Bees

Some of you who have started keeping bees within the past few years perhaps have from one to ten or more hives in your back yards or elsewhere. Here in the North there is nothing you can do for the bees during February if they have been properly prepared for winter and have an adequate amount of winter food. Even though the hives are covered with snow, the bees will not be harmed provided the hive entrances remain open so that the bees can get air. As a matter of fact, snow is good protection for bees during the winter.

Some years ago I visited my brother, a beekeeper 75 miles north of Toronto, Ontario, during February. The snow was unusually deep that winter. I asked my brother how his bees were getting along and he said he supposed they were all right. We went out into the orchard and saw only mounds of snow here and there where the hives were located. We dug through three feet of snow to the entrance of a hive and found the snow in front of the hive melted away and the snow above honey-combed. The bees were "snug as a bug in a rug".

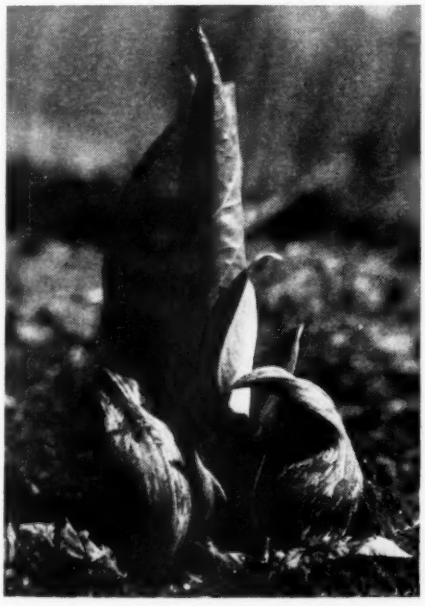
Young Bees Emerging in February

About 15 years ago I visited one of our apiaries in western Ohio on February 14. The yard was in a fairly well protected spot. I want-

A group of beginner beekeepers assembling hive equipment at one of the meetings of the Medina County Beekeepers' Association held recently.

ed to see the condition of the bees, so opened two hives. The colonies occupied two-story ten-frame hives with deep food chambers. The day was quite cold so I disturbed the bees as little as possible.

The first colony I went into had three small patches of brood in the middle combs of the upper chamber. The middle comb of brood, about the size and shape of my hand (which is rather large), had some young, emerging bees and brood in all stages, while the two adjacent combs had somewhat smaller patches of sealed brood, larvae, and a few eggs. The queen in this colony had begun laying about the third week in January. I opened another hive and found similar conditions. The two colonies had an abundance of honey and wintered well in single-walled hives.



Skunk Cabbage (Symplocarpus Foetidus) an early blooming plant in some eastern states furnishes a copious supply of pollen for bees.

These young emerging bees were needed because some of the older bees would begin dying off early in the spring and would be replaced with young, vigorous bees. There is a wonderful balance running through all Nature, even in a hive of bees. Queens in this area continue laying moderately during the late winter. As soon as the first pollen is available and warm weather comes, they begin laying in earnest.

Beekeepers in some parts of the South, where colonies are building up rapidly, may find it necessary during this month to put a super on each colony to furnish more comb space for brood rearing and incoming nectar and pollen.

Utilizing Spare Time in Winter

Those who anticipate enlarging the size of their apiaries can use their spare time evenings and days in the workshop assembling hives and frames, ready for the coming season. We have heard of beekeepers who have had large swarms of bees issue during the height of the season and had no hives for them. It is well to have a few extra hives on hand in case swarms do come out, or, perhaps to hive stray run-away swarms which cluster on bushes in or near your apiary.

If packages of bees are to be used for making increase it is none too early to contact southern bee shippers whose names and addresses appear in the advertising columns of bee journals.

(Continued on page 120)

Editorials

A mild winter thus far in most of the North has given bees a chance for winter flights. This should mean good wintering. However, if this weather continues it is likely to result in abnormal winter brood rearing which means that colonies are likely to consume a large amount of food. Even though most of the two-story colonies were heavy in honey last fall, beekeepers should investigate the food supply when weather is mild enough to open hives.

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Importance of Package Bees and Queens The spring of 1918 found the editor in the raspberry region of northern Michigan, removing over 200 hives of bees from a cellar, during the first week in April. As is usually the case, there were a few weak colonies and it was a problem to know just what to do with them. It would have been like robbing Peter to pay Paul to have taken bees and brood from strong colonies to strengthen the weak ones.

What each of the weak colonies needed was a queenless package of bees from the South. At that time the shipping of combless packages was not common. In fact, if you look through the advertising columns of the bee journals for March, April, and May, 1918, you will find comparatively few shippers of packages. Some were offering one-pound packages of bees with queens. It was not until the early '20s that the shipping of combless packages became common.

Bee breeders in the South were advertising early queens and some were offering bees in small nuclei, consisting of combs of brood with adhering bees. In 1922, Canada barred bees on combs, consequently it was necessary for the Canadians to order combless packages in order to strengthen weak colonies and start new colonies of bees.

Some of the shippers at that time used bee candy instead of sugar syrup. The candy was placed in a small receptacle at the top of the shipping cage, where the bees could reach it conveniently. Candy for bees enroute did not work out well. In some instances, it became soft and this resulted in bees becoming stuck up.

Finally, someone conceived the idea of puncturing the lid of a 2½ pound friction top honey can to be used as a feeder. At first, a single hole in the cover was made large enough for a wick to go through it. This was fairly satisfactory but was soon abandoned.

When it was found the friction-top can with two or three small holes in the lid was satisfactory, the bee shipping business went ahead by leaps and bounds. At one time, a few years ago, close to a million pounds of bees were shipped from South to North in a single season.

The southern queen and bee shippers have made a marvelous contribution to the beekeeping industry during the years. They have made it possible for beekeepers in the far North, where wintering is practically impossible, to start with packages early in the spring and have them develop into colonies which store a good crop of surplus honey the same season. Furthermore, when queen bees are needed in the spring to replace old, worn-out queens, there is no place other than the South to secure the needed queens.

Some northern beekeepers may imagine that producing and shipping package bees and queens is simple, or easy to accomplish. If those who have this idea could spend a season with a large bee and queen shipper, they would surely learn a lot. Southern breeders have difficulties to overcome, such as dearths of nectar and pollen due to erratic weather conditions.

This coming season when some of us in the North receive nice clean shipments of package bees from the South, may we pause long enough after receiving the shipments to consider the amount of labor and skill involved in producing and shipping the packages and queens.

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Lower Express Rates on Bees May be Possible At the recent meeting of the Southern Beekeepers' Conference in Baton Rouge, the question of reducing the present express rates on bees was up for discussion. A representative of the express company attended the meeting. Beekeepers presented their request for a reduced rate so forcefully that the representative

was favorably impressed and promised to do something about it, if possible.

The present express rates on bees seem to be rather high. If it is possible to have the express rates lowered, it seems probable that the increase in the volume of express business might more than offset the loss of revenues due to a reduction of rates. It seems obvious that with more reasonable express rates, more bees would be shipped by rail and less by truck. We hope that the southern shippers may be granted a reduction in express rates.

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Overwintered Colonies Should be Populous As brought out by Dr. C. L. Farrar, in his article appearing in this issue, page 83, entitled, "Ecological Studies on Overwintered Honeybee Colonies," one secret of success in wintering bees successfully and securing the maximum crop of surplus honey, is in having very populous colonies with an abundance of stores,—honey and pollen, properly placed, when the bees go into winter quarters. It is also brought out that colonies consuming a large amount of stores produce more surplus honey because the larger amount of stores consumed results in more brood and more brood means more bees to store a maximum crop when nectar is available.

This article will bear close and careful study. It will likely have to be read more than once to be well understood.

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Egg-Laying Capacity of a Good Queen Various estimates have been made as to the number of eggs that a queen can lay in a day. These figures range all the way from seven or eight hundred to six thousand in a single day. While the last named are certainly high, the first certainly are low. For many years it has been believed that the maximum capacity of a good queen under favorable conditions would be about 3000 eggs in a single day, or perhaps an average of half that, covering a period of two or three weeks in the height of the brood-rearing season just before or during a part of the honey flow. Some work done by W. J. Nolan, of the Bureau of Entomology, and by Dr. J. H. Merrill, formerly of the Agricultural Experiment Station of Kansas, indicates that the daily average would not go above 1500 and the maximum figures not much above 1800.

It should be noted that there is considerable difference between the actual capacity of a queen to lay a certain number of eggs and the number of eggs that will be developed into brood. For that reason, Nolan made his estimates upon the amount of sealed brood rather than upon the amount of both unsealed as well as sealed. The sealed brood would give a more accurate estimate of the numerical population that might reasonably be expected later on. Nolan found that the effective egg-laying would not go much above 2,000 eggs for the vicinity of Washington, D. C.

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Large Versus Small Winter Clusters It should be possible, theoretically, with intelligent apiary management to have all colonies approximately the same size or strength in the fall when put into winter quarters. In practice, however, we have found that colony strength, even in a well managed apiary, varies somewhat.

It is difficult to have all colonies headed by queens of equal quality. There is likely to be some variation even in sister queens. While the slogan we sometimes hear, "Every colony as good as the best" sounds plausible in theory, it does not actually work out in practice.

Most authorities say that colonies below par in strength in the fall should be united with other colonies instead of attempting to winter them. In the past we have wintered a few colonies which were below par. Such colonies are likely to be smaller than normal sized colonies in the spring. It is usually necessary to give them a boost by adding queenless packages of bees from the South, or by adding combs of sealed brood. Obviously, this boosting of weak colonies involves extra expense and labor. One way to eliminate weak colonies in the spring is to winter only populous colonies with large winter clusters.

The winter cluster of bees is somewhat comparable in shape, to a sphere. There is a law in physics that says, the larger the sphere, the smaller the surface in proportion to its volume, or words to that effect. Conversely, the smaller the sphere

the greater the surface in proportion to its volume.

When we study the behavior of bees in a winter cluster it becomes apparent that the law of physics regarding a sphere helps us to better understand the importance of having large winter clusters. A winter cluster in cold weather consists of a rim, or periphery, of bees two or three inches in diameter with heads pointing in and bodies very close together. The bees in the center are clustered loosely and generate heat by muscular activity while the bees in the rim keep most of the heat in. The temperature in the center of the cluster never goes below 57°F., even though the temperature outside of the hive may go below zero.

It is, therefore, obvious that the bees in a small cluster with a relatively larger surface have to work harder to keep warm than bees in a larger cluster with a relatively smaller surface. Furthermore, in a large winter cluster relatively fewer bees are required on the outside, or rim, of the cluster to retain the heat produced by the bees in the center and therefore relatively more bees in the large cluster are available for generating heat in the cluster.

The moral seems to be: Beekeepers should winter only populous colonies that will make large winter clusters. Such colonies, if given an abundance of stores of good quality and adequate protection, can be divided in the spring if it is desirable to have more colonies.

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Honey Crops in Canada Beekeepers in Canada secured a bumper crop in 1951.—40,909,000 pounds. The crop for 1952 is estimated at 29,677,000 pounds, which is considerably less than 1951. Yields per colony were down in all provinces except Alberta, and the number of colonies down in all provinces except three.

In 1951, the yield per colony throughout the Dominion was 101 pounds this past season; in 1952 it was 78 pounds. The per colony yield in Alberta this past season was 133 pounds as compared with 118 pounds in 1951. The estimated number of hives of bees in Canada for 1951 was 406,340; for 1952, 380,250. It is hoped that the number of colonies in Canada will increase during the coming season as more beekeepers and more hives of bees are needed throughout the Dominion to salvage the amount of nectar available and to perform the necessary pollination service to fruits, vegetables, and legumes.

We have not yet received the report from Washington giving the estimated amount of honey produced in the United States in 1952 but this information will doubtless be available in the near future. It is thought that the crop in this country was slightly less in 1952 than in 1951, viz., approximately 259,000,000 pounds.

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Bees Require Little Labor Beekeeping is an important branch of agriculture. In a sense, bees may be classed as animals, even though they are insects. Of all the animals kept on a farm there are none that need less attention than bees, especially during the winter. As a matter of fact, bees require comparatively little attention during summer, after the owner has learned just what to do in apiary management.

Cattle, horses, pigs, sheep, and all kinds of poultry in the north have to be fed and watered each day during the winter. Some commercial beekeepers in the North go South in the fall to escape the cold and ice, while their bees are snuggled comfortably in hives, on combs containing an ample amount of food. In many instances hives are covered with snow. The beekeeper who leaves an abundance of good honey in each hive in the fall does not need to worry unduly about his bees.

Honey bees in their natural habitat store up enough food during the summer to last them through the winter. Bees in modern movable-frame hives are likely to have enough food for winter and early spring provided the owner does not remove too much of the honey in the fall.

In the handling of bees as a sideline or on a commercial scale, it is very important that beekeepers learn from experience or otherwise just what the essentialities are in successful apiary management. It is not likely that the labor per colony for an entire year would exceed four or five hours. Some of the hive manipulations which many consider essential could perhaps be omitted in order to reduce labor costs.

From North, East, West, and South

NORTHERN CALIFORNIA, Dec. 31

Weather: This past year has been favorable for beekeeping in California, and the fall and winter rains thus far portend another good season for 1953. Fall and spring rains are essential for optimum plant growth and especially for the wild range plants, such as California sages and buckwheats. Heavy snows in the higher mountains will make a helpful reserve for the many dams which supply water for power and irrigation purposes. The normal seasonal rainfall averages for November and December in this area are 2.61 and 5.81, respectively, and we have received this year 1.56 and 7.24 inches, or a total of 8.81 inches for the year. The normal average is 9.71 (July through December.)

Condition of Colonies: A majority of the colonies should be in excellent condition where the beekeepers have supplied each with a vigorous queen during the summer or fall months. We had a long fall period in most sections of the state, enabling the seed growers to harvest their seed and beekeepers to locate their colonies advantageously for any pollen or nectar available from fall plants. Our beekeepers have increased their colonies to a point where many have an insufficient number of supers for even an average honey flow. As a result, many colonies became honey bound, with a resultant loss of honey, during this past season. Two beekeepers reported that their colonies even stored honey in combs they build on the outside and between two hives placed about six inches apart. This is understandable for when a colony is crowded, it clusters on the outside in a shaded portion of the hive and if the bees have to act as honey reservoirs at the same time, they quite frequently build comb. Once the chain of biological events has been forged, the work will continue as long as the bees are crowded and nectar is available.

New Equipment: One of the younger beekeepers, Oliver Hill, now operating close to 2000 colonies with the aid of a mechanical hoist, has added a hive-weighing device to his lift so every time he loads a hive of bees, he can look at the dial and see how much the hive weighs. In this manner, he can detect when supers are needed, or when stores need to be equalized in the fall, or when something is wrong with the colony, without opening the hive. When one has a "mechanical George" to do the work, a weighing device that can be put into operation by the flick of a small lever while the hive is being lifted adds an element of value in detecting the condition of the colony without adding another operation.

California beekeepers who are using hive hoists are predicting that a majority of the commercial beekeepers will have some type of hive hoist within the near future and will use hoists in operating their colonies as well as in moving from one location to another. Let's take the backache out of beekeeping!

Honey Marketing: The Advisory Board of the California Honey Marketing Order appointed as manager the present director of a Lima Bean Marketing Order to get more efficient management and to stay within the funds available for the promotion of honey sales and honey research. The new manager has had a world of experience in the advertising field and has many contacts which can be made available to the honey industry.

The total production of California now exceeds 11,500,000 or an increase of close to 1,000,000 over the census figures. Increase due to immigration approximates 20,000 a month and natural increase—birth rate over deaths—adds another 150,000 souls. If our honey industry could increase the consumption of honey in California to two and one-half pounds per person, our buyers would have to scurry around outside of the state for the millions of pounds of honey they are now exporting to other states or to foreign countries. There is a BIG potential market right at our doorsteps—in every state—waiting to be developed by the proper kinds of advertising and displays.

One method of advertising we urgently need is through the use of proper display cards or selling aids, for restaurants. And we need to sell the merits of honey not only to those who **use** our product but to those who **sell** it.

The various subsidy programs have tended to make the beekeepers more grade-conscious than they have been under other programs. During World War II any kind of honey would sell at a good figure and many beekeepers got into the bad habit of not permitting their honey to clarify properly before placing it into five-gallon cans. Several honey buyers have stated recently that the honey they are now receiving is of a higher grade than in previous years. Actually, **there is no reason why every beekeeper should not market honey that will run Grade C or even Grade B.** A greater differential in price between honeys of Grade B and of Grade C would be good for the industry.

Miscellaneous: The writer was advised recently by several commercial beekeepers that they were preparing to manufacture their own hive tops, bottoms, and supers because they have been unable to buy them at any price, and by doing so, they have found that they can keep experienced labor busy during the winter season. This may not be true in the other sections of the country, but for some reason or other it does apply to California. When conditions are good in the industry, beekeepers are prone to improve their equipment and to increase to the limit of their ability — and sometimes beyond their limits — to utilize in full their equipment and labor. Building materials are in such demand and at such high prices, that bee supply materials apparently are in short supply.

The new officers of the California State Beekeepers' Association are: T. S. Davis, Sacramento, President; Perry Dyer, Loma Linda, Vice-President; and A. K. Whidden, Corona, re-elected Secretary-Treasurer. — J. E. Eckert, University of California, Davis.

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GEORGIA, January 2

Crop and Prices: During the fall of 1951 the demand and prices decreased on chunk comb pack and a large volume of the crop was carried over into 1952. In March and April the demand and price increased and most of the 1951 crop was sold before the 1952 crop was made. Due to unfavorable weather in the spring of 1952 the crop was subnormal, especially on chunk comb. The quality of the '52 crop, as a whole, was better than the '51 crop. The demand and price increased and there is very little chunk comb honey left in beekeepers' hands. Indications are that all the 1952 crop will be sold before the '53 crop comes in.

Weather: It was extremely dry during the summer and early fall of '52 and bees did not store enough honey to winter in some sections of the state. A number of large south Georgia beekeepers had to feed last fall and will have to feed again as soon as colonies start heavy brood rearing. We have had very little cold weather to date and bees have consumed more honey than normal. More rainfall is needed in the tupelo and gallberry sections of south Georgia. Bees in middle Georgia, or the Piedmont section, are in fair to normal condition with rain needed in some sections. Bees in the mountain section of north Georgia are in about normal winter condition. However, in some areas bees have consumed more than normal winter stores, due to the warm season. If there is much cold weather during January and February in the southern part of the state, thousands of colonies will have to be fed.

Miscellaneous: Because of the reduced demand for package bees and the cheap prices being quoted, over 60 percent of the colonies normally run for package bees in Georgia will be run for honey this year. It normally costs more to operate for package bees than honey, therefore the profit from honey production is greater than package production especially since the government has established the loan program on honey.

Cattle farming has greatly increased in Georgia during the past four years and thousands of acres of pasture lands have been planted into clovers and there are more bees being used and needed for pollination than ever before.

Because most of the 1952 crop has been sold and should be off the grocers' shelves by June, no decrease in prices is anticipated for the 1953 crop. — A. V. Dowling, Valdosta, Georgia.

OKLAHOMA, January 1

Weather: The weather condition was favorable during early spring, 1952, and as a result the flow from fruit trees and other spring blossoms was good. We were blessed with early pollen such as willows, maples, elms, and dandelions. The drouth began getting in telling blows around this section last June. Since June 1, until October 22 there has been only 4.80 inches of rainfall here. That's about 10 inches less than the normal 14.93 inches of rain that have made up an average June to October 22 moisture here for the past 15 years, but July is such a dry month usually—2.15 inches—that the July 1952 total of 2.37 inches helped conditions only temporarily. Then on November 24, we got our long awaited soaking rain over the weekend, more than all the moisture that fell in the County during August, September, and October. In 1952, most parts of the State have been the driest years on record. Our past 10-year average rainfall was 34.15 inches. In 1952 it was only 22.33 inches.

Honey: Heavy frost on October 6 killed most fall nectar sources. Bees obtained little fall honey due to the very dry weather, although in some sections the summer crop is very good. Most colonies are going into winter quarters in good condition. Stores in most yards are ample, but in a few some feeding may be necessary. The local demand for honey has improved with the turn to colder weather. Reports from a number of beekeepers indicate that they have disposed of most of their honey. The sales of honey in 1952 have been the best since World War II days here in Oklahoma.

Legumes: Little clover and vetch have been sowed for the year 1953. However, legumes will be scarce this year because of the very dry summer and fall. Plantings were very light as the rain came too late. More moisture is badly needed throughout most of the State so it is possible that many seedling growths of sweet clover and vetch may have been hurt by the drouth.

Miscellaneous: National Honey Week was observed here in our County. Mr. Bill Brubaker from KRHD Radio Station who reports the Oklahoma Farm Front Program every morning, allowed me to appear on his program and give a talk on bees and honey. At the end of the talk I presented both him and his boss, Mr. Leo Morris, Radio Station Manager, with a jar of honey. They accepted with a "Thank you". Mr. B. L. Abernethy, owner of the "Duncan Daily Banner" talked about honey in his Editorial called "Today's Comments". I thought it was nice of him to do so, without being asked. The Secretary to the Stephens County Beekeepers' Association, Anna McMahon, attended the State beekeepers' meeting on December 18, at Oklahoma City. It was my good pleasure to have Dr. Marion S. Smith visit my apiary. He congratulated me on the big, tall bee hives that produced 165 pounds each. Dr. Smith lives at Stillwater, Oklahoma, and has taken up beekeeping as a hobby on his ranch, located two miles west of town. — V. K. McMasters, Duncan, Oklahoma.

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WESTERN NEW YORK, Jan. 1

Weather: Western New York has been blessed with wonderful nice fall weather.

Bees are in very good condition. Apiary work as well as general farm work is in better condition than average.

Beginning with August we have had frequent light rains. **Most localities produced a satisfactory crop** of mixed-flower honey during the fall and bees are generally heavy.

So far as I am informed **there is no honey unsold in the hands of producers.**

New seedlings of clover are not plentiful but the few there are look good.

This is a rather short report. If any one wants a longer one re-read Elmer Carr's notes for New Jersey, page 679 of the November Gleanings, for they surely apply for Western New York, except we do not get as high pollination rental as they do in New Jersey. — Howard Myers, Ransomville, N. Y.

VERMONT, January 3

Weather: For the past three months we have had lots of weather. Until the first of December, we had a continuation of the dry spell that started last June. Many farmers had to draw water for stock because of deep wells going dry. With early December, some nice rains have helped greatly, and since then there has been considerable snow that has kept the ground from freezing so far. Today another foot of snow has fallen and still coming down so we can be assured of good snow cover for some time. Both the bees and the clovers, we hope, are sleeping comfortably under their deep white blankets.

Bees and Plants: No doubt last summer's dry spell hurt the clovers some, but there should be enough next summer with good wintering. Acreage of bird'sfoot trefoil is increasing rapidly and there appears to be some interest in seed production. What it means to our future honey production remains to be seen. While many areas report discouraging honey secretion from trefoil we feel in some areas it does yield considerable honey, as it seems to here. Some areas report good yields of honey from sweet clover, yet with us, it is not much of a honey plant. There is much more to nectar secretion than just honey plants, — a lot depends on where they grow. As for bees, they seem to be well supplied with honey this fall and most of them should winter well. In spite of the fact bees with us do not have a flight for five months, we have had almost no winter loss for many years now. We hope our lack of wintering troubles continue.

Honey Market: One of the surprises this year is the brisk demand for comb honey,—it was practically all sold by November here. Why it went so slowly a year ago and so fast this year is a mystery, but such is the way with the buying public. Liquid honey has a fair demand, perhaps a little better than last year. While prices remain the same for some time now, the overhead, such as labor, freight, and containers, continues to go up. The margin of profit, it seems to me, is smaller than it has ever been. During the depression we retailed 5-pound jars for $1.00; today we retail it for $1.50. So far as net profit is concerned, we were certainly much better off in depression days. It is only our larger production that keeps us going.

Miscellaneous: It was my good fortune to attend the Ontario Beekeepers' meeting in Toronto in early December. In addition to an excellent meeting in every respect, the work of the Sports College in Toronto is indeed outstanding as far as beekeepers are concerned. In their tests with various foods and diets for athletes, they have found honey to be outstanding in every respect, and in no case have they ever found honey to cause any digestive disturbance even when used during violent physical activity. It has actually increased endurance, quick recovery, and better reflexes. Many of the hockey players use honey with excellent results and work is now being extended on the effect of honey with industrial workers. Since these tests are made under medical supervision and with hundreds of cases, its results cannot be disputed. There is no question that Sports College along with the American Honey Institute have been responsible for raising the consumption of honey in Ontario from 2.5 pounds to 3.5 pounds per annum. Such an increase in the U. S. would really mean something and if we use the material Sports College has available, it should help us increase honey consumption. One dollar spent on such work as the Sports College is doing, is worth more than a million dollars spent on artificial supports such as subsidies. When beekeepers and the public find out how much honey really means to good health and energy, there will be no problem selling it.—Charles Mraz, Middlebury, Vermont.

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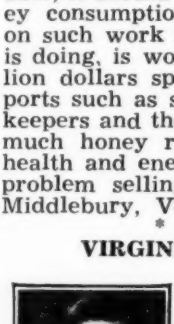
VIRGINIA, January 2



Weather: In 1952 the weather has been variable in different sections of Virginia. We had more dry spells than we did wet spells. Early spring brought cold damp weather, retarding the spring build-up of

colonies. Much of the clovers were killed, so weather conditions in January and February had much to do with the short crop from the clovers. Then what clover did live was injured by a drouth about blooming time. We had a fairly late fall which gave the bees time to work asters as long as they bloomed, and a chance to thoroughly ripen it before cold weather. So far this winter the weather has been ideal for wintering bees. They have had a good flight about every two weeks.

Condition of Bees: As mentioned above, the bees have had a good chance to prepare for the winter and spring ahead. They went into winter with a good-sized cluster, and very little feeding had to be done except in a few sections where the drouth was very bad. Most of the beekeepers are making a practice of leaving a food chamber on every colony. More are using the shallow food chamber than the deep food chamber. With this full of honey and the brood chamber pretty well filled, the beekeepers here in Virginia have gotten pretty good results. Many colonies are used for orchard pollination, and this size hive, handled right, has given nice colonies for this work.

Honey Crop: Even though we did not have ideal weather all of 1952 the honey crop was pretty good except in the northern counties. Many beekeepers averaged more than 100 pounds per colony spring count. In most cases this was a mixed honey, more dark than light. There was, however, a good crop of sourwood honey in the Piedmont section. The years 1951-'52 were both sourwood years, which is unusual.

Market: There have been a lot of complaints about the movements of honey. Some have moved their crop for a very low price rather than see it sitting around, while others have sold an average crop at their same price of 30 cents per pound to retail stores. It seems now that most of the honey will be sold by May. There are some who are becoming discouraged and selling their bees, while there are others that believe there are better days just around the corner and expect to increase their number of colonies.

Miscellaneous: The Virginia State Beekeepers' Association will hold its annual spring meeting in Charlottesville on March 6. An interesting program is being prepared. All beekeepers are urged to attend. It will be in the Monticello Dairy Recreation Hall.

We regret to announce the passing of Mr. T. C. Asher, of Brookneal, Virginia. Mr. Asher was one of the best, and most loved beekeepers in Virginia. He had been a beekeeper for over 50 years. His crop this past year was more than 100,000 pounds. He was 68 years old. He is survived by his wife, one son, and two daughters. He will be greatly missed wherever beekeepers meet.—Henry Weatherford, State Bee Inspector, Vernon Hill, Virginia.

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NORTH DAKOTA, January 3

Weather: So far this winter the weather has been quite different from the past few years. I won't say unusual because who is to say what "usual" weather is in North Dakota. It has been mild with little snow. Although it has not been warm enough for cleansing flights, it has permitted loose clustering and ease of securing honey.

Plants: A late fall rain insured the sweet clover and alfalfa of a start next spring. A heavier covering of snow would be beneficial for the clover in case the bottom falls out of the thermometer as it is apt to do this month.

Speaking of honey plants, Dr. O. A. Stevens of the NDAC Botany Department recently mentioned that there are now available reprints of his "Handbook of North Dakota Plants". This is an excellent book for identifying the different wild flowers and weeds in North Dakota.

Market: Honey is moving about the same with a slight drop in prices. Recently we noticed some chunk-liquid honey for sale in a local store. It was processed in common pint fruit jars and had started granulating. Upon picking up a jar it was found to be sticky from honey on the outside of the jar. The total result was a very unappealing product. With all due respect to the processor, marketing of this type decreases sales appeal not only for itself but for other honey on sale as well. A few cents more per jar would have secured a more suitable container and better processing would have produced a product more eye-pleasing, more salable, and more fitting to the delicious food that honey is.

Miscellaneous: An interesting machine for tripping and pollinating alfalfa was introduced to the public in a recent issue of the Farm Journal. Although this machine has not apparently reached the efficiency of bees for pollinating alfalfa (when the bees do work it), it does resound again the crying need for more research work to be done in using bees for alfalfa pollination.

Buying habits or perhaps better stated, "buying training" is strong. A customer stopping at our office to purchase a couple of jars of honey noticed some honey was darker than the other. After remarking that he liked the dark honey better he purchased two jars of light honey. We still have folks ask us if granulated honey is not adulterated with sugar. In fact, one gentleman insisted **pure** honey never granulates; his grandad had kept bees so he knew. The Dyce process has done much to dispel these myths but much educating is still needed.

We got quite a kick out of E. C. Martin's children's table prayer in the October issue. As poetry, it would probably make Martin poet "low-rate" but the thought is fine and appropriate. All of us have much for which to thank God in this land of ours this past year.—J. R. Anderson, Assistant in Entomology, Fargo, No. Dak.

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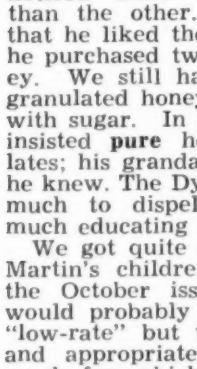
TEXAS, January 6



Weather: The temperature this season has averaged somewhat below normal. Killing frost has occurred in all except the lower south section of the State, however, there has been no severe cold thus far. The past two months brought bountiful rainfall to most of Texas, breaking a drought of long standing. Water courses and reservoirs again are approaching normal water levels and the soil is saturated to greater depth than it has been in three years. While most of Texas is rejoicing over the relief from drought, much of the western third of the State remains sorely in need of rain and it is hoped that good rainfall will soon come to that area.

Bees, Plants, and Honey Crop: With the prevailing cool weather this season bees have been fairly inactive with relatively little flight. In most localities the fall flowers apparently made most of the limited soil moisture, allowing the bees to gather adequate supplies of winter stores. Broodrearing continued late into the fall and most colonies have good populations of young bees. In less favored localities colonies are light in bees and stores and will require feeding. Since the recent rains fall-seeded legumes and annual wild plants of value to bees have emerged in a good stand leaving fields, pastures, and roadsides a cover of green over a large area. Cool weather has retarded growth sufficiently to harden off the plants and remain less susceptible to frost damage. Prospects are excellent for abundant early spring bloom. There is an extensive acreage of Hubam sweet clover and in south Texas where rain occurred in early fall, this clover is now ready for grazing. In north Texas fall-seeded vetch is up in a good stand and the acreage is quite large. Sweet clover varieties are generally seeded in the spring in that area. Most of last year's planting of biennial clover was killed out by the drought and extensive reseeding will be made during the next two months.

The 1952 honey crop was extremely spotted with normal yields occurring only in widely scattered local areas wherever moisture was favorable. Horsemint was reported from most of its range with the yield in favored localities above normal. Much of this crop was of light color and the moisture content well under 18.6%. With low moisture content there was little trouble from fermentation which is the usual objection to this honey. It is generally not considered suitable for table grade although it finds favor in some local areas and the export trade. Choice table grades were scarce, coming largely from cotton, sweet clover, and brush. As a whole, the year's honey crop is the shortest in recent years.

Market: Honey in the retail market has been moving quite well during the past month. Prices have been generally steady with a price increase indicated on some packs. Supplies in producers' hands are running low with some having disposed of their entire crop.

Miscellaneous: Insecticidal poisoning remains a serious problem

of beekeeping in our State, especially in the vicinity of cotton fields. While bees are relatively safe with a few standard formulas of insecticides commonly used, most insecticides are destructive to at least a portion of the field force, leaving the colonies below par and little surplus is stored. Arsenicals are still used to some extent, resulting in large scale destruction of colonies. Vetch fields, too, are becoming more hazardous to bees. Aphid infestations are becoming more frequent and usually require application of insecticides to protect the crop. If parathion and others of the more potent insecticides are used, heavy loss of bees will follow especially if the colonies are exposed to the drift of the poison.

The Lower Rio Grande Valley beekeepers held their early winter meeting on December 18. Since the severe freeze of 1951 and heavy loss of citrus trees beekeeping is now limited largely to resident apiaries with practically no migrations made to that area. Some serious losses from poisoning occurred last summer. Colonies remaining in the Valley are in good condition and there should be ample pasture in the citrus orchards this spring. Approximately a million citrus trees were planted last year and further replacement with better commercial varieties continues. With the completion of a large reservoir more water will be available for irrigation. Within a few years the Valley is certain to regain all of its former glory.—A. H. Alex, College Station, Texas.

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WASHINGTON, January 5

Weather: We had the driest summer and fall in weather-bureau history, and up to this time we are some 20 inches short of our normal rainfall. This has caused considerable cut back in electricity, and has caused a number of plants to lay off quite a number of employees, and certainly did not do the honey flow any good the past season. We had a fairly good flow in the early spring, but the fireweed was very spotted, consequently a very light crop in this particular vicinity. This writer had some 75 colonies moved in to the fireweed on July 5th and moved them out the 10th of September, and for that two-month period they produced an average of ten pounds per colony, which is a very poor average. I have talked with a number of beekeepers on the west side and they all had about the same experience.

Market: Movement of honey is slow. The price is about the same as it was a year ago. A few chain stores and some of the local merchants are selling at a somewhat lower price. One store has a California packed honey as well as Idaho brands that are selling for 98 cents per 5-pound pail while local honey is selling for $1.20 per 5 pounds.

Miscellaneous: Bees went into winter in excellent condition with an abundance of honey and enough pollen to carry them through in fine shape. The winter has been very mild, very few nights that the temperature was below the freezing point, and very few days the bees could not or were not taking a flight. Today they are flying as though it was a spring day.

Our local bee inspector, Mr. J. W. Breedlove, was in our county this past fall on an inspection tour and advises that AFB is not so plentiful as it has been in past years, which is proof that our state inspection department has been doing a good job even though they have to work on short allowances. There has been quite an effort to convince our state representatives that bees are a necessity, with the hope of getting more money appropriated for inspection work. — Walter Evans, Longview, Washington.

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MAINE, January 12

Weather: Our winter so far has been open with very little zero temperature. There have been several small snowstorms that were followed by rain. This made a good surface to move around on after it had frozen. In the northern part of the state it was different, with heavy snow and plenty of zero weather. It is rather interesting to note the difference in the amount of snowfall that there is one hundred miles north in our state. As my locality is in the central part of the state, we are protected by mountains on all sides with the exception of the East. That is where our worst storms seem to make up from, especially if the wind bears to the North.

There has been the usual amount of lumbering and pulping being done in this section. This kind of a winter makes it a pleasure to do outside work.

Bees: Bees have had a chance to take their usual short flights around the apiary, also to change the nest to new stores. We have noticed this year that they are very quiet. This should denote that they are contented. I hope so, anyway.

Honey Market: There is not much action in the honey market since the holiday season. During that time honey sales were good. There are signs that it will pick up as parcel post orders have begun to arrive. Comb honey is moving better than extracted honey at this time. The chain stores are as usual cutting the price on extracted honey. This makes it a little harder for the beekeeper who retails a choice extracted honey. A beekeeper friend of mine was telling me about approaching a local chain store manager as to handling some extracted honey for him. The manager pointed to a large display of a chain-store brand and shook his head. But he said, "I would like a half-dozen pound bottles of your honey to take home." That answers the question in my opinion.

Miscellaneous: It is a great time to get equipment ready for the spring season, although it is very easy to put it off until a swarm comes along and you are looking around for that hive that is not ready.

Beekeepers should begin to plan to be at the annual State Association of Beekeepers' meeting at the University of Maine at Orono during Farm and Home Week from March 30 to April 2. There will be a very interesting bee program and there are several important issues that will be discussed at the annual business meeting. It is hoped that the attendance to this bee meeting will show that beekeepers appreciate what is being done for them by their state association and state officials. Let's get behind the Association and shove instead of dragging our feet.—E. M. Wills, Kent's Hill, Me.

Radio Tower Does Not Disturb Bees

The homing instinct in bees does not seem to be affected when near high powered radio stations as birds are. These bees are located close beneath one of the antenna towers of Radio Station KSJB, 5 miles south of Jamestown, North Dakota. The bees gathered a fair crop of honey.—Photo from R. Ridgeway, Jamestown, North Dakota.

American Honey Institute News Notes

By Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

Just put on your thinking caps for a minute and go back ten years ago or so. Those were the war years, you will remember. Goods were short, consumers had to search for what they considered the necessities of life, and if you had the money you couldn't always find much to spend it on.

But in spite of shortages, smart businessmen kept right on with their extensive advertising programs. We call them "smart" businessmen because post war years proved that they were. Fact of the matter is, the simple law of the Survival of the Fittest went into effect right after industry went back to producing civilian goods after the war. The "fittest" were those manufacturers who knew that to keep their product before the eyes of the public was just as important when they could supply the demand they created as when they couldn't.

It was a source of great amazement to many civilians—and also a source of great joking—to view the tremendous advertisements, billboards, expensive radio programs, that auto manufacturers sponsored to keep their product's name alive in the mind of Mr. John Q. Public even though he couldn't buy a car.

We might inject our favorite story here: The Director wrote a news release on honey and sent it to hundreds of newspapers. One editor wrote her a letter and complained about receiving a release when he could find no honey on the store shelves. The Director as usual answered with a most friendly letter. In another week the editor of this metropolitan paper sent her the paper. On the front page was an article that read something like this: "Editor goes to the Queen Bee for an Answer." He published her letter in which there was this story: "A woman went into a meat market and when she saw a poster of a beautiful slice of ham on the wall, she said, 'Why do you have that poster there when you have no ham for sale?' 'Lady,' said the butcher, 'I'm going to make you so hungry for that ham that when I do have it you'll buy twice as much.'" The editor devoted a full column to praising our product—Honey.

After the war it was those same civilians who remembered the advertisements, the billboards, and the radio programs, and spent their accumulated dollars on the products that had been pushed.

We cite this episode because it has a lesson to teach us, the honey people of the nation. Even though wintertime is not honey-producing time, it must be etched upon the minds of the public that it is a honey-consuming time.

True, honey is on the market 12 months out of the year. True, it keeps its place on the grocer's shelf the year around and does not relinquish that space to any other food. But it is also true, unfortunately, that once the honey is gleaned from the hive, processed, and marketed, it's all too easy for the beekeeper to regard his job as completed for the year.

January is here and gone. A new year is here. And a new chance is here. Let's take it. Let's remember that it is the fellow who exerts constant pressure on his honey markets who constantly enlarges his markets.

So instead of relaxing now that the snows cover the beehives, let us keep up the campaigns we started in the spring and summer. Let us keep honey's name right up in plain sight all the year around.

It is the American Honey Institute's prime job to help you with this work. We stock mats for newspapers and publications that can be bought at cost. It is to your advantage to make use of this service. We have posters, streamers, stickers—you know the story. You and the rest of the beekeepers of the country bought our honey literature in large quantities this summer, necessitating the reordering of many of the leaflets that had been in plentiful stock.

But we urge you now not to let up in your efforts to keep honey facing forward.

The Institute itself recognizes the importance of keeping its winter work a-pace with the tremendous job it does in the summer. Honey news releases are sent out with the

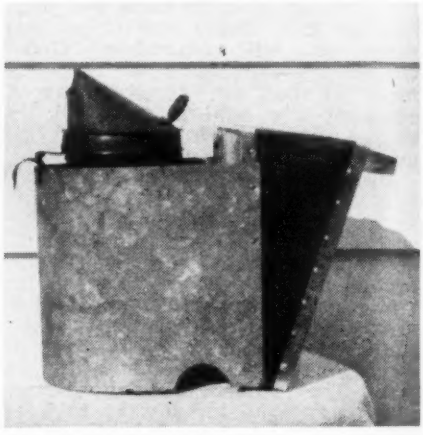
(Continued on page 120)

From the Field of Experience

A New Smoker Shield

By Charles Koover, Altadena, California

When the smoker is carried between the knees you know where to find it. But having a frame with bees suspended between both hands, and a smoker which is too hot for comfort burning your knees at the same time, is an unpleasant situation. The shield supplied by smoker manufacturers is an improvement. Although lined with asbestos it still does not eliminate the heat entirely. This shield which any beekeeper handy with tin snips can make in a jiffy, does away with scorched knees. The principle of it's effectiveness is that hot air rises and cool air takes it's place. Since there is ample space between the fire pot and the shield, quick cooling is afforded. This shield gives so much more bite for the knees on the smoker that it will not slip. And it makes it possible to take several steps with the smoker clamped between the knees. Another nice advantage is, that the shield makes the smoker much more difficult to overturn which reduces the fire hazard.



Beeswax Scales Recognized in 1744

By Frank Shaw, University of Massachusetts, Amherst, Mass.

The following, I think is one of the first correct observations as to the origin of beeswax.

John Thorley, 1744, in his Female Monarchy pp. 135-136 states:

"At last, viewing a Hive of Bees very busy at Labour, I observed one Bee among the rest, as she fixed upon the alighting Place, of an unusual Appearance; upon which I seized her directly before she had time to enter the Hive; where with a very sensible Pleasure, I found what I had (till then) been in vain searching for. Upon the Belly of this Bee, within the Plaits, were fixed no less than six Pieces of solid wax, perfectly white and transparent like Gum, three upon one Side, and three upon the other, appearing to the Eye equal in Bulk and Gravity; so that the Body of the Bee seemed duly poised and Flight not in the least obstructed by any Inequalities.

"Here have I found it at other times; and once I took away eight Pieces together, and I knew it was wax and nothing else."

Apparently Thorley could not think that the wax was a product of the bees' body since he further states "that those very bees that gather the wax, do also themselves manufacture, and frame it into combs."

These observations were recorded about 50 years before Huber considered the subject.

Subsequent to my writing the above, I read that Charles Butler's "Feminine Monarchie" also has a mention of wax scales. This antedates Thorley's discovery by some years.

[It is strange that Thorley still accepted the generally agreed on theory that the wax was gathered. That John Hunter and Huber did not know of Thorley's discovery is evident. Credit must be given to Thorley for first discovering the scales and recognizing them as wax even though he did not know their origin. Why did so many accept for so long the theory that beeswax has a vegetable origin? No doubt the fact that pollen is so often yellow helped spread this belief.—Ed.]

Professor Paddock Receives Recognition

At the recent Iowa State Beekeepers' Association meeting, Professor Floyd B. Paddock was presented the Iowa "Beekeeper of the Year" award for 1952 in recognition of his years of outstanding service to the beekeeping industry. The meeting was held on December 4, 1952, at Ames, Iowa.

Professor Paddock's many achievements include his comprehensive studies on the life history and control of the greater wax moth, his annual publication of the Report of the State Apiarist, which is acclaimed by readers throughout the world, his vigorous and inspiring activity in lecturing to beekeeping classes, and his active participation in Iowa State College Agricultural Extension work on beekeeping subjects.

The above picture shows Newman I. Lyle, of Sheldon, Iowa, (left) and John G. Jessup, of Perry, Iowa, (right), making the presentation of the award. It is interesting to note that Mr. Lyle and Mr. Jessup are both former students of Professor Paddock. Mr. Lyle was the first student to major in the study of apiculture under the direction of Professor Paddock at Iowa State College in 1921.

At the annual banquet of the Iowa State Horticulture Society held in Ames on November 20, Professor Paddock was also presented with the Society's Honor Award for his activities in the field of apiculture.—R. J. Walstrom, Extension Entomologist.

Nosema

By W. Geoffrey Moore, Major, Lanarkshire, Scotland

If your contributor Dr. R. W. Tichauer (page 628, October, 1952 Gleanings) has fluked a cure for Nosema with his aureomycin treatment, it is what the whole world has been waiting for. Are you going to leave it at that, or shake up your research people?

As an epidemic of Nosema in any one hive disappears just about as quickly as it becomes apparent, what I suspect may have happened is that Dr. Tichauer dosed his bees with aureomycin at a time when unbeknown to him a recession of the epidemic had started. Colonies can recover to normal strength after an epidemic but the bee's foraging efficiency is much impaired.

Difficulty in Making Honey Vinegar

By Paul S. Grierson, 54 Elm Street, Maplewood, N. J.

For years I have made vinegar from my odd honey. Each time I have **not** boiled the mixture before starting fermentation which is done by adding yeast to a 1 to 5 mixture. The egg test is used, also. When fully fermented—no sweet taste—I add a tablespoonful of mother of vinegar. The vessels are kept covered at all times with one or two layers of cheesecloth.

After about six months the vinegar is sharp to the taste and it is then boiled until it foams up but boiling is not continued for more than a few minutes.

Some of the product has formed mother of vinegar after the first boiling and it gets a second round of boiling.

Now, here's the rub. This year, like other years, some of the vinegar has formed a sediment in the bottom of the glass vessel. I've tried straining only to have the sediment reappear. I've boiled again with the same result—more sediment.

After about ten years, the idea that I cannot make good, clear vinegar with any degree of certainty is dawning on me. Can you tell me where I've gone wrong? [Perhaps some of our readers who have had experience in making honey vinegar can help Mr. Grierson.—Ed.]

A Way Not to Requeen

By Herbert Warfel, Plainfield, Ills.

The new queen came on Tuesday. It was a nice day in August when the bees could fly and fly.

"If you were a commercial beekeeper", I said, addressing myself—in English, "your time would be your own and you would have nothing to do today but requeen your colony; but you, you poor underprivileged slave, you have to work all day at something where you make some money."

So I decorated the screen of the queen's cage with two nice coats of sugar syrup and put her in a cool, dark corner of the cellar and told her she would be detained there till the weekend, when it would probably rain felines and canines, respectively.

But it didn't. On Saturday I took her to my out-yard. It is a large out-yard—two acres, with an average of one colony to the acre. It was a nice day when the bees could fly and fly. But they didn't. There was no honey flow. In fact, in Illinois there hadn't been any honey flow. Everybody was home, doing no more flying than the Japanese air force—and there isn't any Japanese airforce.

"Why fly an airlift," the bees were saying, "when there's nothing to lift but air?"

I remembered the instructions an old beekeeper had given me; "First find the old queen and kill her," just as offhand as he would say first to take off the outer cover. But it was more complicated.

I looked at every comb—only I couldn't see the combs for bees. I couldn't see the queen, either. So I went to the car and got out my copy of the beekeeper's bible. At least it's like The Bible, except The Bible says Alpha and Omega, and this book says ABC and XYZ. I can read it better that way. Alpha and Omega are Greek to me.

"This book," I said to myself, "will take you to the Root of the matter."

It said to put an excluder on top of the hive and an empty hive body on top of that, and to pound the hive for 20 minutes. The bees would go upstairs and the queen and the drones would be sifted out. Then anybody who knows a queen from a drone can see the queen on the bottom of the excluder.

I put on the excluder and body and got a hammer, and for half an hour I gave a correct imitation of a Congo tom-tom artist tapping out in code the first three chapters of "Drums Along the Mohawk." Then I opened the hive.

Half the bees had taken the elevator to the top story according to specification; but the rest hadn't read the alphabetical book, so they had just sat tight and enjoyed the ruffles and double-flams of my

drum solo. There was no queen on the excluder.*

"This is a handicapped outfit," I said to myself. The bees are illiterate and you are blind—and dumb. Why not put the excluder on the bottom board under the hive and shake the whole colony out into their front yard? When the bees go back in, the excluder will strain out the queen just like cheesecloth straining a hive splinter out of warm honey."

I shook. The bees adhered to the combs, but I finally had them shaken all over township 36 north, range 9 east of the third principal meridian. I also had shaken out 18 days' crop of nectar.

Then I waited around for them to go in. I never saw bees less homesick. The combs they had been clinging to seemed to mean nothing to them. It was two hours before the last group sauntered unconcernedly in and let me get back to work.

Some of the bees had gone up into the combs, but the rest had just gone in on the bottom board and called a meeting. On the excluder they were four deep like high-school students around a soda-fountain on a late Friday afternoon. I saw drones, fuzzy young bees, and old bees polished by the buffing of life—but no queen.

By this time the sun was going down for the third time—in three days. "Take the excluder out," I said to myself, "and let the old queen in. Put a double excluder under the top body and put your queen-cage up there. It's your last chance. Maybe the upper bees will adopt her."

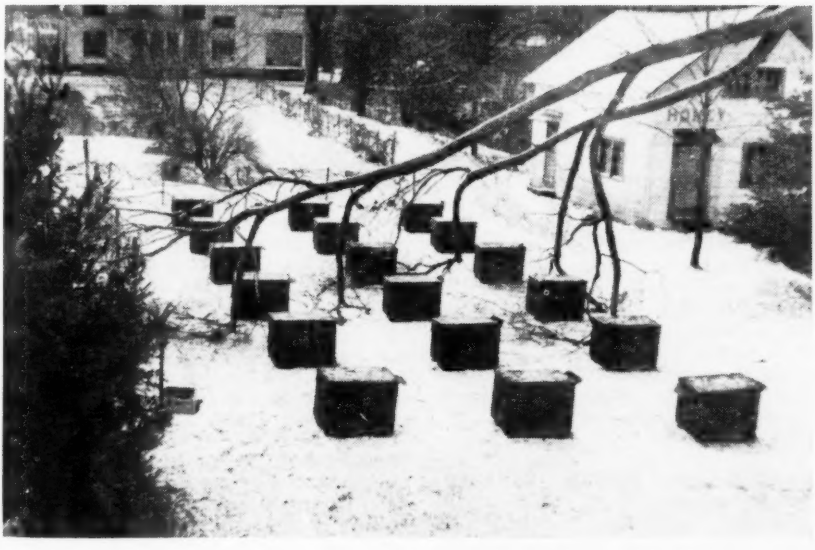
So I did.

"Young lady," I said to the new queen, "if the bees let you out and then put you behind the eight-ball, and then in the middle of it, I shall be sorry."

"And if they accept her and you have a two-queen outfit on your hands," I said to myself, "won't you be surprised?"

I came back to the yard a week later. I was not surprised. The new queen was still—very still—in the little cage.

*I should add for the record that when I have tried this trick on other occasions, it has produced the desired result.



This tidy backyard apiary belongs to L. M. Lyman, Greenwich, N. Y. Bees are packed away for the winter as snug as a bug in a rug. The winter winds took down the big branch of the tree, but kind fortune allowed it to miss all of the hives.

Just News

The **Westchester County Beekeepers' Association** will hold its next meeting at 2:30 P.M., Sunday, Feb. 15, at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. A speaker is expected. Bring your questions and have them answered by our old-timers. Refreshments will be served at the close of the meeting.——Carlton E. Slater, Publicity.

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The **Western Missouri Beekeepers' Association** will meet on Sunday, February 8, at 7011 Prospect Ave., Kansas City, Mo. Time 2:30 P. M. Visitors cordially invited to attend. —Mrs. R. W. Cornforth, Secretary, Grandview, Missouri.

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Meeting of Essex County Beekeepers' Association (Mass.) will be held at Extension Hall, Essex County Agricultural School, Hawthorne, Mass., on Saturday, Feb. 14, at 8:00 P. M. Annual Meeting, with election of officers. Guest speaker will be Mr. B. W. Richardson of Worcester County Association, who will speak on Packaging and Sale of Honey. All persons interested in beekeeping welcome. — Stephen A. Lovejoy, Jr., President.

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The **Pennsylvania State Beekeepers' Association** held its regular meeting in Harrisburg on January 13 and 14 in connection with the Pennsylvania Farm show. The meeting was well attended showing plenty of enthusiasm. Officers for the coming year were all re-elected, namely, Paul Ziegler, President; H. K. Beard, Vice-president; H. M. Snavely, Sec.-Treas.

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The annual spring meeting of the **Virginia State Beekeepers' Association** will be held in Charlottesville, Virginia, March 6, 1953, at the Monticello Dairy Recreation Room, Preston Avenue, at 9:30 A. M. The Albemarle County Beekeepers' Association will be hosts for lunch. All beekeepers are invited.—C. H. Pirkey, President.

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The **Middlesex County Beekeepers' Association (Mass.)** will hold its regular monthly meeting on February 29, at the regular winter quarters at Waltham, at the Mass. State Field Experimental Station There are to be motion pictures of beekeeping and bees and Mr. Victor Thomas, Chairman of the "Show Committee" will make final arrangements for the Bee Display to be part of the Flower Show, which is to be held under the auspices of the Massachusetts Horticultural Society where the Bee display by the Middlesex Association has come to be a regular feature of the show and is looked for by many of the tens of thousands of people who attend. Many of the visitors from the New England States have for the first time been introduced to Honey and Honey Bees.—John H. Furber, Sec.-Treas.

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The annual winter meeting of the Empire State Honey Producers' Association has been postponed from late fall until March 20 and 21, 1953, according to Dr. E. J. Dyce, professor of apiculture at Cornell. More than 100 are expected to attend the newly scheduled affair at the Hotel Syracuse, he added.

"The date has been advanced to early spring to avoid bad weather," said the beekeeping specialist. "Yet the event occurs before beekeepers become too busy with the problems of spring management."

Results from the 1952 bird's-foot trefoil pollination experiments conducted at the Cornell Agricultural Experiment Station will be revealed by Dr. W. L. Coggshall, Cornell's Extension apiarist. This plant, a legume, promises a new source of income through pollination.

Prof. E. C. Martin, apiarist at Michigan State College of Agriculture, will be one of the guest speakers. Representatives of bee supply companies and leaders from other state beekeeping organizations will round out the program.

A dinner, to be held in the evening, will give beekeepers a chance to renew old acquaintances.

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Short Course—A beekeeping short course will be held at the University of Manitoba for one week, February 16 to 21, 1953. This course is designed to be of benefit to the experienced beekeeper as well as the beginners. Registration will take place during the morning of February 16 at the Comptroller's office, Administration Building, the University of Manitoba, Fort Garry, with lectures beginning that day

and continuing daily until Saturday noon, February 21. Approximately 25 lectures and demonstrations covering the whole field of beekeeping will be given. Plan now to take an educational holiday the week of February 16 to 21 and spend it at the University. Further information may be obtained by writing to:- D. R. Robertson, Provincial Apiarist, 153 Legislative Building, Winnipeg, Manitoba; or Professor A. V. Mitchener, Department of Entomology, The University of Manitoba, Fort Garry.

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On February 22, 1953, the **Cuyahoga County (Ohio) Beekeepers' Association** will meet in the basement of the Miles Avenue Church of Christ, 9200 Miles Ave., Cleveland, Ohio. The meeting is called for 2:00 P. M. Dr. Edwin Anderson of State College, Pennsylvania will show his wonderful collection of color slides. The Miles Avenue Church is right in the center of Cuyahoga County so a large attendance is expected.

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The **Oakland Public Schools** are offering the eighth consecutive series of our class in Beekeeping under the joint direction of Dr. J. E. Eckert and Lee Watkins, both of the University of California at Davis. The class will be under the sponsorship of the Alameda Beekeeping Association and will be offered on seven consecutive Mondays beginning February 2, 1953 from 7:15 to 9:15 in Oakland Public Schools, 4351 Broadway, Oakland, California. Practical aspects of beekeeping with reference to advanced research findings will be emphasized. —Henning A. Edlund, Principal.

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The winter meeting of the Connecticut Beekeepers' Association will be at the Booth Memorial, Stratford, Connecticut, 10:00 A. M., February 21st. We are a friendly crowd and welcome all beekeepers and friends interested in bee culture. Much information may be acquired at these meetings.—Philemon J. Hewitt, Jr., Chairman of Publicity.

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Tazewell County (Illinois) Beekeepers Association went into hibernation for the winter and will, like the ground hog, come up again for a look at the weather on Sunday Feb. 8. On that day we will meet at 1 o'clock at the Farm Bureau Building in Pekin. The business meeting will be preceded by the usual basket dinner. Dues will be accepted and new officers will be elected. All members are asked to kindly keep this date open.—Joseph Jachman, Sec., Peoria, Ill.

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Annual Meeting of the Southern States Beekeepers' Federation and **American Bee Breeders' Association,** at Baton Rouge, Louisiana, Heidelberg Hotel, December 1 and 2, 1952. The Louisiana Beekeepers' Association acted as host to the two organizations.

Many problems of national scope as well as those of concern to southern beekeeping had places on the program and were discussed at length. Some of these were: Honey sales promotion,, the PMA honey price support program, and the problems relating to adequate pollination of agricultural crops by bees. A matter of special concern to a large number of southern bee producers and the subject of an extended panel discussion was the increasingly high express rates on the many tons of live honey bees moved each spring from southern bee yards to northern beekeepers for honey production and crop pollination.

Officers for the coming year for the two sectional organizations are as follows: American Bee Breeders' Association: President - Leslie Little, Shelbyville, Tenn., Vice-President - J. W. Newton, Baton Rouge, La., Secretary - R. S. Weaver, Navasota, Texas.

Southern States Beekeepers' Federation: President - David Dunavan, Clemson, S. C., Vice-Pres.t - Leslie Lewis, Havana, Florida, Secretary - W. E. Blasingame, Atlanta, Georgia.

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Idaho Honey Producers' annual convention was held at Twin Falls, Idaho, Dec. 18-19, with William Schrieber (president) presiding and conducting the meetings. A goodly representation of Idaho beekeepers was present. Mr. Harry Brandt and Mr. Hansen of the State P. M. A. board were present and explained how the Federal loan on honey to the producer worked; and answered all questions pertaining to it. Dr. William J. Barr, of the University of Idaho, spoke on the work of the experiments carried on of pollenization of legume seed crops in the Magic Valley. Top interest was the advertising campaign carried on

(Continued on page 125)

Asked & Answered

Producing and Marketing Chunk Honey

Question: In producing chunk honey how does one go about packing it? Is it put in glass jars or is there a moisture proof container (as the modern milk container) available for such work?—F. O. Nichols, N. Y.

Answer: Regarding the production and packing of chunk honey, it is usually produced in shallow extracting frames using thin super foundation. There are at least two methods of putting it on the market. Some put it into glass jars containing extracted honey. For example, a chunk of comb, the right shape, put into a one-pound jar of extracted honey, the piece of comb extending from the bottom to the top of the jar with extracted honey surrounding the piece of comb, makes an attractive package. In parts of the South where sourwood honey is produced, as for example, in North Carolina, some of the beekeepers use wide mouth five-pound jars and two and one half pound jars. About four or five pieces of comb are put into each jar to fit properly and then extracted honey is poured in until the jar is filled. This makes a beautiful pack. Sourwood honey does not granulate readily and is therefore suitable for chunk honey. Some wrap pieces of chunk honey in cellophane after the cells that have been cut have had a chance to drain thoroughly after being placed on a wire screen with a metal container below it to catch the drippings. The cellophane wrapper shows off the honey to good advantage. However, this method of packing involves a considerable amount of work.

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What to Do with Crystallized Chunk Honey

Question: I produce only chunk honey. This is my problem: My honey is candying in the combs. According to the "Beekeeping in Pennsylvania" by Prof. E. J. Anderson one can liquefy crystallized honey by heating it in a dry chamber at a temperature of not higher than 160°F. This is all right for extracted honey but what about honey in the comb? Will not 150-160°F. result in melting of the wax of the combs?

Is there any easy way of restoring my chunk honey to its liquid form, or will I simply have to use it as feed for the bees next spring?—C. M. Crawford, Ontario.

Answer: It seems to be the general consensus that honey should be brought to 160°F. in order to retard granulation. The melting point of beeswax is around 143°F. This means that if you heated your honey in combs to 160°F., the wax would become liquid. You can save the combs of granulated honey for bee food next spring or you can place the granulated chunk honey in a metal container then put this container into a boiler of hot water over a hot plate. If heated sufficiently, the honey and wax will become liquid. The mixture after being kept hot for a short time should then be allowed to cool. The wax being lighter than honey will rise to the surface while the honey being heavier than wax will remain below. When the water is cool the wax that has solidified on the surface can be picked off in a chunk. The honey below should be heated again to about 130° so that it can be strained through a fine cheesecloth to remove any bits of wax or foreign matter. You then have the honey separated from the wax. Honeys that have a high percentage of dextrose granulate quite readily. There are some honeys in the South, as for example, sage, tupelo, and sourwood, that have a high percentage of levulose and do not granulate readily. Producers of these honeys sometimes place pieces of comb in each jar of honey in order to make the pack more attractive. If clover comb honey were put into jars of liquid honey in this manner, the pieces of comb honey would likely crystallize in a short time.

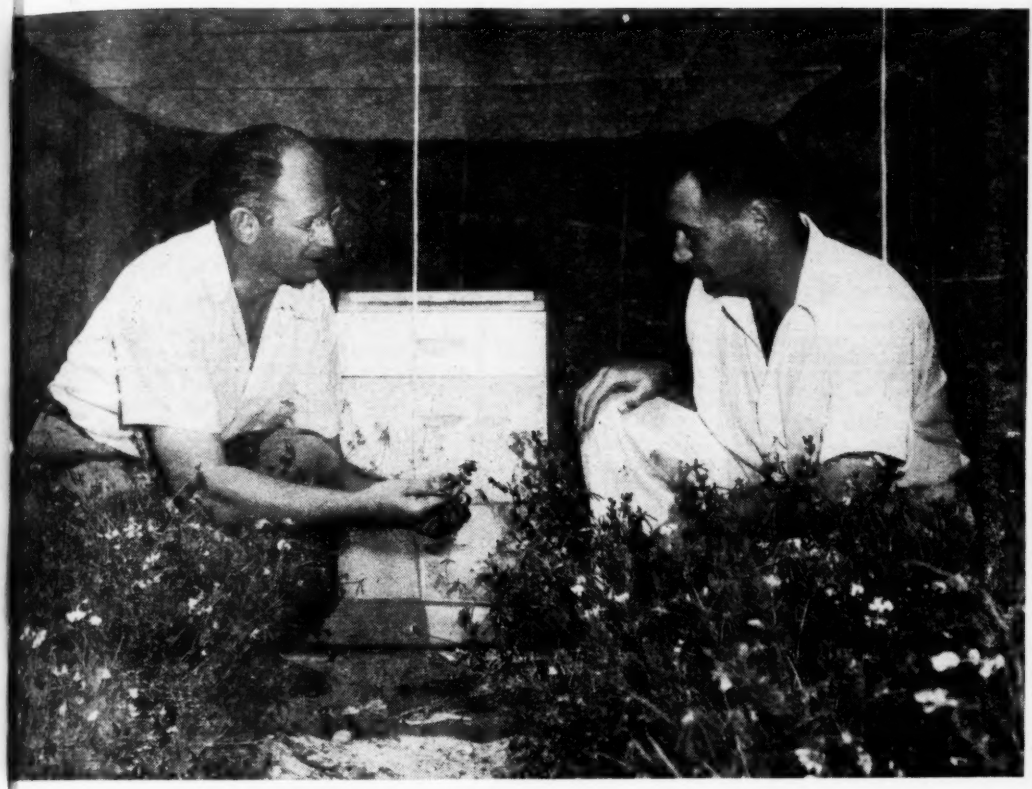
* * * * *

Wax Moth in Comb Honey

Question: I would like to know what I did wrong. Soon as I took off my comb honey, I cleaned the sections and put them in window cartons, then I put them in grape boxes and stored them in a warm room of my home. Later while checking it over I found wax worms were drilling tiny holes all through every comb. I lost 600 cakes in this way. I am quite sure it is disease free.—E. L. Featherman, Pa.

Answer: You really should have treated the honey with carbon-bisulphide. Place the carbon-bisulphide in a shallow pan in an empty super placed on top of each pile of supers to be treated and leave tightly covered for at least 24 hours. At 70°F., 10 cubic feet of space requires about two ounces of carbon-bisulphide. It is necessary to give the honey a second treatment in about 12 days after the first in order to destroy the larvae that have

(Continued on next page)



Bees Make a Difference

Honeybees working under the "Big Top" (screened cage) produce a big crop of Bird's-foot Trefoil, the newest hay and pasture legume for New York farmers. The bees concentrate their flower visits on the new Viking variety developed by Dr. H. A. MacDonald, Cornell agronomist. He is showing Dr. W. L. Coggshall, N. Y., extension apiarist, how seed pod production in the cages surpassed pod development in the open field. Mainly because of poor pollination only one-fourth of the national requirements of 12,000,000 pounds of this legume seed has been produced, but the specialists hope to meet the demand when they learn the number of honey bees needed for efficient pollination.

Asked and Answered

(Continued from previous page)

developed from eggs. This chemical destroys the live moth and the larvae but not the eggs. Next year, if you will fumigate your comb honey as soon as it comes off the hives and will keep it away from wax moths after it has been treated, you are not likely to run into this trouble again. When using carbon-bisulphide remember it is very inflammable, so keep it away from any fire.

* * * * *

Hives of Bees Covered with Snow

Question: Will bees covered up with snow during the winter be smothered?—John Walker, Vermont.

Answer: On the contrary, snow-covered bees are likely to winter well, especially if the colonies have an adequate amount of good quality stores. The snow protects the bees from the cold winter winds. Even though the hive entrances become covered with snows, enough air will filter through for ventilation. In fact, if you will dig down through the snow you will find a small space in front of each hive entrance where the snow has been melted away.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Mich.

ANY GRADE—Any amount. Alexander Co., 819 Reynolds, Toledo, Ohio.

IOWA Honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

PALMETTO, and Mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

CLOVER extracted honey in sixties. Abram Brubaker, Lancaster, Pa., Rt. 1.

800 Cans White Clover Honey. John Tideswell, 2711 North 63rd St., Omaha, Nebraska.

TRUCKLOADS clover honey in sixties. Walter Roose, Sac City, Iowa.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on COD terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & Company, 1360 Produce St., Los Angeles 21, California.

HONEY WANTED, any amount. If you want more for your honey, sell it to Cloverdale Honey Co., Fredonia, N. Y.

WRITE FOR shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 percent saving. Walter T. Kelley Co., Clarkson, Kentucky.

WANTED—Light amber clover, amber, goldenrod, buckwheat. Advise what you have for immediate delivery. Roscoe F. Wixson, Dundee, N. Y.

CASH PAID for white and amber extracted honey. Send samples and state quantity available. Prairie View Honey Company, 12303 - 12th St., Detroit 6, Mich.

CASH FOR YOUR HONEY—Light extracted or comb. Regular trade send sample. 60-pound cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Co., Millersport, Ohio.

WANTED honey in all grades. Highest cash prices paid. Submit samples. Schultz Honey Farms, Ripon, Wisconsin.

ALL GRADES HONEY AND WAX WANTED—Mail samples, advise quantity and cash prices delivered to us. HONEY SALES COMPANY, 1808 NO. WASHINGTON AVE., MINNEAPOLIS 11, MINN.

WANTED — Honey all grades. Quote prices and send sample. Write Stoller Honey Farms, Latty, Ohio.

WANTED—Carloads or less of honey and wax. Any grade. Send sample and best cash price. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

WANTED—All grades extracted honey. Send sample, price, and quantity. Deer Creek Honey Farms, London, Ohio.

WANTED: Pay over market price for clean, average bright beeswax. Also we render cappings and combs. Roscoe F. Wixson, Dundee, N. Y.

ATTENTION BEEKEEPERS, sell through us car or truck loads, no middleman's profit assures you highest prices local and export, we assume credit risks, our brokerage is low. We are honey brokers established 1910. Mail samples all particulars to Chas. E. Farris Co., 99 Hudson St., New York, N. Y.

WANTED—Buckwheat honey. Eastern Food Products, 115 Division Ave., Brooklyn, N. Y.

FOR SALE

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Mich.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other Catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

BEE SUPPLIES—Tin packages; 10 sizes glass jars; paper shipping supplies; window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

The only comb foundation plant in the east. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, R. D. 3, Auburn, N. Y.

BEE SUPPLIES. Catalog free. Hodgson Bee Supplies. Ltd., 575 13th Ave., New Westminster, B. C., Canada.

EQUIPMENT for 500 colonies bees. Good condition. Take any part. John Bigley, 1414 Fourth Ave., Council Bluffs, Iowa.

FOR SALE—1,000 once-used 60-lb. cans. Just like new. 30c each. F.O.B. here. Honeymoon Products Co., 39 E. Henry St., River Rouge 18, Mich.

FOR SALE—100 painted new 10-frame hives, complete with bottom board, hive body and super, frames, and aluminum cover. Blust Churn Co., 789 So. Diamond, Mansfield, Ohio.

FOR SALE — 42 colonies, 10 frame. Bruce Morehouse, Montevideo, Minn.

BOOSTER bees, fifty cents pound after May 15th. You supply cages. Write for other package prices. Two hundred ten-frame colonies, excellent condition, ready for orange, tupelo, gallberry flow. Valdosta Honey Company, Valdosta, Georgia.

FOR SALE — 110 colonies bees with shallow supers for food chamber; 190 shallow extracting supers with drawn combs; 45 frame extractor; 1 uncapping machine; four 180-gal. tanks. Certificate of inspection furnished. W. P. Mann, Thurman, Iowa.

FOR SALE—Used Root 45-frame extractor and 1¼-inch Honey Pump. Root steam boiler with Coleman gas burner. Two Macy electric uncapping knives. All in good condition. Never had disease. Write Ben Gilbertson. Kindred, N. Dak.

FOR SALE—135 two-story colonies. 500 extra supers. Equipment standard size. Honey tank. Inspection certificate furnished. James Haifleigh, Cambridge, N. Y.

FOR SALE — 500 supers and frames which have been sterilized, 50c each; also tops and bottoms. Chester Kintner, Alvordton, Ohio.

FOR SALE — New heart cypress 10-frame bottom boards. K. D., 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. 1 nailed up sample, postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

46 colonies, averaging 3 hive bodies, with this year's honey. Standard equipment, hive bodies, $1.25 each, bottoms & tops, $1.00 each; frames, 10 cents each. All assembled and painted and less than three years old. J. Johannessen, 1856 Stearnlee, Long Beach 15, California.

FOR SALE—All of my bees and queen yard equipment; 10-frame in good shape. I have passed 74. Write me for a good deal. Miller's Apiaries, Geo. D. Miller, Three Rivers, Rt. 1, Texas.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold, or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

BOOKING ORDERS for 1953. Caucasians. 2-lb. pkg. $3.00; 3-lb. pkg. $4.00. Untested Queens, $1.00 each. Lewis & Tillery Bee Co., Greenville, Ala.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Michigan Headquarters for
Root QUALITY
Bee Supplies
Complete Line of Bee Supplies and Honey Containers
Prompt Service
Michigan Bee and Farm Supply
510 N. Cedar St.
Box 7 Lansing, Michigan

WILLIAMS ITALIAN QUEENS
LARGE LEATHER COLORED THREE-BANDED
QUALITY SUPREME
CERTIFICATE WITH EACH SHIPMENT
1 - 9 Postpaid $0.85
10 -99 " " ..... .75
110-up " " ..... .70
HUBAN CLOVER HONEY FOR SALE
DR. WILLIAMS APIARIES
303 W. Defee Ave. Baytown, Texas

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction.
Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

1953

Prices for Early Bookings

3-Banded Italian Bees & Queens

Check these features:

1. **Shipping charges prepaid**
2. **Guaranteed safe arrival**
3. **Health certificate with each shipment**
4. **Queens clipped and painted, if desired, at no extra cost**
5. **Shipper rated in Dun & Bradstreet**
6. **No increase in price over last season**

1953 PRICES DELIVERED PREPAID

	Queens (each)	2-lb. & qn.	3-lb. & qn.	4-lb. & qn.	5-lb. & qn.
1 - 24	$1.10	$4.00	$5.00	$6.00	$7.00
25 - 99	1.00	3.75	4.70	5.65	6.60
100-499	.95	3.50	4.40	5.30	6.20

(For queenless packages — deduct price of queen.)

SHIPPED ANYWHERE IN UNITED STATES AND CANADA

Terms: One-third upon receipt of order, balance 10 days before shipment

H. C. BRUNSON
(formerly lessee)
Carolina Honey Company
P. O. Box 188 Phone 4641
Hampton, South Carolina

THREE-BANDED ITALIAN BEES AND QUEENS

We guarantee liberal overweight packages, young baby bees, young mated queens, no drones. Shipping cages made of extra light material which saves on postal and transportation charges.

	Queens	2-lb. w/q	3-lb. w/q
1 -24	$1.00	$2.75	$3.65
25 -99	.90	2.60	3.50
100-up	.75	2.45	3.35

For queenless pkg. deduct price of queen

Prompt Service — Live Delivery Guaranteed

LUCEDALE APIARIES
Lucedale, Mississippi

Booking orders now. Over 30 years a shipper. Send for Free Circulars.

BLUE BONNET APIARIES
Weslaco, Texas

Peace is for the strong . . .
Buy U. S. Defense Bonds regularly!

YANCEY HUSTLER Package Bees & Queens. Ready to go April 1st. Booking orders; no advance payment required. Caney Valley Apiaries, 2500 Nichols, Bay City, Texas.

GOOD PACKAGE BEES AND QUEENS for 1953. Three-Banded Italians only. Outstanding honey producers. Long experience, ample financial responsibility, and over 1000 colonies to draw from makes this a safe place for your order. Write for prices. H. C. Short, Fitzpatrick, Alabama.

THREE-BANDED ITALIAN bees and queens for 1953. Write for prices. Alamance Bee Company, Geo. E. Curtis, Mgr., Graham, N. Carolina, Phone 4703.

CAUCASIAN QUEENS, young laying. Personally raised. 1-9, $1.10; 20 up, $1.00 each. Shipping starts about April 10. Fred Brock, McDonald, Tenn.

THE NORMA ROY APIARY Italian bees. 3-pounds with untested queen, $3.50; 4-pounds with untested queen, $4.00. Live delivery and a health certificate with shipment. Norma E. Roy & Son, Hessmer, Louisiana.

YELLOW ITALIAN bees and queens. Real producers, health certificate, satisfaction guaranteed. 2-lbs. with queen, $4.00; 3-lbs. with queen, $5.00; queens, $1.25 airmail. O. E. Brown, Route 1, Asheboro, North Carolina.

GREEN'S PROFIT PRODUCING Italian queens will please you. My 25 years' experience is your safe guard. If you want a better hive of bees, get a better queen. Start shipping about March first. Price, 90c each. After June first, 50c each. Cash before shipping dates. D. P. Green, De Land, Fla., R. 2, Phone 512M.

YELLOW ITALIAN QUEENS, package bees. Health and service guaranteed. For early delivery, place orders now. H. E. Calfee, Niceville, Florida.

GOLDEN ITALIAN BEES AND QUEENS for 1953. Write for prices. Carolina Bee Farm Graham, N. C.

MISCELLANEOUS

CAR LOAD 5-pound friction-top pails just received for prompt shipments to you. A. G. Woodman Co., Grand Rapids 4, Mich.

GOOD MONEY IN WEAVING. Weave rugs at home for neighbors on $9.50 Union Loom. Thousands doing it. Booklet free. Union Looms, 7 Post St., Boonville, N. Y.

WANTED—One Root 10-inch foundation mill. State condition and price. Box 113, Gleanings in Bee Culture, Medina, Ohio.

HONEY POTS—Ideal for gifts or your own use. Send for circular. Carlton Slater, Bronson Ave., Larchmont, N. Y.

WANTED—Used frames. Swarm catcher. Callaway, Norwood, Virginia.

MIDWESTERN BEEKEEPER would like to purchase from 50 to 300 hives of bees. Must be located Midwest. Write price and particulars to Charles Duax, 1934 N. Sayre, Chicago 35, Illinois.

20-frame Root Simplicity extractor and uncapping spin drier. Sueper Apiaries, Webster City, Iowa.

WANTED: Lease or purchase bees. References furnished. Prefer Montana or Idaho. A. M. Fowler, Sunnyside, Wash.

HELP WANTED

WANTED — Experienced beeman, also have bees to rent on share crop. C. H. Schader, Sunnyside, Washington.

RELIABLE, experienced man in extracted honey production. Excellent opening for right party wishing interest in business. Give age, qualifications and salary expected. Lavern Depew, Auburn, New York.

HELP WANTED: Experienced man for 1953 queen and package season. Give references and salary expected in first letter. Howard Weaver, Navasota, Texas.

HELP WANTED: Experienced man for honey production in Minnesota. Opportunity for right party to buy or lease part of operation. Hopkins Honey Farms, Maringouin, La.

WANTED help for work in bee yards and packing plant. Experience not essential. Excellent wages plus bonus. Other advantages. Schultz Honey Farms, Ripon, Wisconsin.

SEEDS

HONEY PLANTS, TREES, and SHRUBS. Specialized catalog free. Beekeeper and grower for 42 years. NICOLLET COUNTY NURSERY, St. Peter, Minn.

Ask for new 1953 catalog HONEY PLANTS; illustrated 25 actual photos—trees, shrubs, perennials, forage crops—unusual. Offering seeds, plants. Special offer: VITEX INCISA NEGUNDO whips, 6, $2.50, postpaid. Send today. Pellett Gardens, Atlantic, Iowa.

MAGAZINES

THE BEE WORLD, international and scientific journal on bees and beekeeping, with apiculture abstracts. Monthly, including membership in the Bee Research Association, $3.00 per annum, including apicultural abstracts. Dr. Eva Crane, Director, 55 Newland Park, Hull, Yorks, Eng.

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh. Dist. Naini Tal, U. P., India, or available through them. Subs. Rs7/ or 10 shillings or 2.25 dollars per annum. Single copy, Rs ¼s. 1/9 or 40 cents (International Money Order). Payment in mint postage stamps of your country accepted.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3306, Cape Town, South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription $1.00. Sample copy, fifteen cents.

STOP! LOOK! ORDER!

Your package bees and queens —
Good quality Italians —
Dependable service.

Joe Pencin

Box 517 **Davis, California**

As announced we have the exclusive Contract to supply (Kelley's) Island Hybrid Queens in 1953.

Island Hybrid Bees are produced by crossing two inbred lines to produce the virgin. When mated to a drone produced from another two lines the result is an outstanding bee possessed of full hybrid vigor. They have been tested both by U. S. and Canadian bee culture.

Orders must be filled in the order received after available dates have been alloted.

Order Early

With Hybrid Queen	1-25	26-up
2-lb. pkg.	$3.50 ea.	$3.25 ea.
3-lb. pkg.	4.50 ea.	4.25 ea.
Hybrid Qns.	1.50 ea.	1.40 ea.

Regular queens, deduct 25 cents from above prices.

"They Produce"

Rossman Apiaries

P. O. Box 133 **Moultrie, Ga.**

OUR CUSTOMERS SAY:

That our bees are the best, after comparing them with others. For honey production, disease resistance, and gentleness, our LADYLIKE Mountain Gray Caucasian bees cannot be surpassed.

Health Certificate with each shipment.

* * * * *

Select untested queens:

1-11	12-49	50 or more
$1.30 each	$1.20 each	$1.10 each

2-lb. pkgs. with select untested qns.

1-11	12-49	50 or more
$3.75 each	$3.65 each	$3.50 each

3 lb. pkgs. with select untested qns.

1-11	12-49	50 or more
$4.75 each	$4.65 each	$4.50 each

Free Circular on request.

CAUCASIAN APIARIES

Castleberry, Alabama

Healthy Italian Bees & Queens
Write for 1953 Prices
Georgia Bee & Honey Apiaries
P. O. Box 312 **Hortense, Ga.**

Starline **SUNKIST** **Italian**

We offer Dadant's Starlines or Italians for best in quality.

	Starline Q.	Italian Q.	2-lb.	3-lb.
1 -24	$1.50	$1.20	$3.50	$4.50
24 -99	1.40	1.10	3.25	4.25
100-up	1.30	1.00	3.00	4.00

Packages with Starline queens, add 30c per pkg.

SUNKIST BEE COMPANY **CONVENT, LA.**

Three-Banded Italian Package Bees and Queens

Quality and quantity with the kind of service you have a right to expect.

	Queens	2-lbs. w/q	3-lbs. w/q	4-lbs. w/q
1- 25	$1.15	$3.00	$3.90	$4.85
25- 50	1.05	2.90	3.80	4.75
50-100	1.00	2.85	3.75	4.65

Homan Bros.

R. 2 Shannon, Mississippi

—QUEENS—

Top Quality Italians
Personally raised Queens

1-10	$1.50
10-49	1.25
50-499	1.05
500 or more	1.00

Prices Postpaid Airmail
No Baby Nuclei

SAM E. MOORE

New Address New Phone
Rt. 1, Box 620 REDDING
Anderson, Calif. -147 W 3

Know Your Cost

State size and number of package bees wanted, how many queens. Get our delivered price by Mail or Express. We have furnished more than a Half Million Queens and Packages in 41 years. We furnish only Italian bees and queens and they are backed with our 100% Satisfaction.

Merrill Bee Co.

P. O. Box 115
State Line, Miss.

Mississippi's Oldest Shippers

Package Bees & Queens
Quality & Service
C. F. KOEHNEN & SONS
Glenn, California

TALKS TO BEGINNERS

(Continued from page 95)

Those who anticipate starting beekeeping this season should take time to become familiar with the fundamentals of beekeeping. It is well to subscribe for more than one bee journal, if possible. Editors of journals will gladly answer questions on beekeeping. Read as many good bee books as you can afford. These are listed in bee supply catalogs. A catalog obtained from a bee-supply manufacturer contains much information on hives and beekeeping equipment.

Contact beekeepers in your locality in order to learn more about beekeeping. Attend beekeepers' meetings whenever possible and don't hesitate to ask questions.

AMERICAN HONEY INSTITUTE NOTES

(Continued from page 107)

same regularity as during the summer. Institute leaflets are re-written, and new ones are planned. The members' directory is compiled and sent out. Honey is represented on many homemakers' radio and television programs. There is no slack in the effort the Institute staff makes to promote honey.

Like the big and wise automobile manufacturers during the war, we strive to keep honey before the public 100 percent of the time.

PACKAGE BEES AND QUEENS — "ITALIANS"

	1-9	10-99	100-up
2-lb. pkg. with queen	$3.25	$3.00	$2.90
3-lb. pkg. with queen	4.25	4.00	3.80
4-lb. pkg. with queen	5.25	5.00	4.75
Extra Queens		$1.00 each	

We guarantee live delivery, a health certificate with each shipment, and service on which you can depend. Shipments by Express or Parcel Post.

Quality Does Not Cost — It Pays

The Wilbanks Apiaries

Claxton, Georgia

BETTER BRED QUEENS — THREE BANDED ITALIANS

Salesman talk and producing bees and queens are two different things. We are not too good at salesman talk, but we have made a success of the bee business. Our 25 years' continuous Commercial Beekeeping and thousands of satisfied customers are the results of one of the best strains on the market. We solicit your continued patronage. Let us book your order at the following prices:

	Queens	2-lb. w/q	3-lb. w/q
1 -18	$1.15	$3.25	$4.15
18-99	1.05	3.10	4.05
99 or more	1.00	3.00	4.00

CALVERT APIARIES — CALVERT, ALABAMA

LIVE AND LEARN

(Continued from page 90)

sometimes painful work, and for the investment and management skill required, woefully underpaid by the standards of present-day labor. We are not talking about the reasons why a beekeeper stays with it in spite of the unpleasant sides. The benefits outweigh the handicaps. That's why there are beekeepers. Like me.

Frankly, I don't know what we can do about it. In the first place beekeepers' associations, the bee magazines, and even the bee supply manufacturers don't reach half of the beekeepers. And how can you get a concerted effort for promotion, when maybe two thirds of those affected don't know what it is all about?

The Honey Institute and Federation are each doing a grand job in their respective fields, considering what they have to work with. Guess the next best thing to do is to forget about the fellows who won't kick in, because they don't know any better, and do the best we can. Only do it, instead of waiting for all the others to pick up the check first.

Peace is for the strong . . .
Buy U. S. Defense Bonds regularly!

ORDER NOW

For April and May Delivery

	1-25	Over 25
2-lb. bees with queen	$3.50	$3.25
3-lb. bees with queen	4.50	4.25
Italian Queens (p.p.)	1.10	1.00

Prices on bees for shipment Express Col'ect. For Mail shipment add postage.

Supply Dealers and Co-op's write for quantity prices.

FINEST STOCK
RATED DUN & BRADSTREET
35 YEARS EXPERIENCE

J. F. McVay

Honey Home
Jackson, Alabama

HOWARD WEAVER'S

Caucasian Bees & Queens

	Queens	Packages 2-lb. w/q	Packages 3-lb. w/q
1 -24	$1.25	$3.85	$4.85
25-49	1.15	3.60	4.60
50-up	1.05	3.35	4.35

Package bees express collect. Live delivery guaranteed. By parcel post write for estimate of charges. Queens prepaid by air mail when expedient.

Howard Weaver

Navasota, Texas

QUALITY BRED QUEENS

Italians	**$1.00 each**
Caucasians	**1.15 each**
Hybrids	**1.00 each**

All queens shipped by Air Mail and guaranteed to please. Shipment starts about March 10th.

Walter D. Leverette Apiaries

P.O. Box 364 Fort Pierce, Fla.

Italian Bees and Queens

	1-24	25-99	100-up
2-lb. w/q	$3.00	$2.90	$2.80
3-lb. w/q	4.00	3.85	3.75
4-lb. w/q	5.00	4.85	4.75
Nice large qns.	.95	.90	.85

Live delivery guaranteed, young bees and queens. 10% will book order. Balance 20 days before shipping.

Mitchell's Apiaries
Bunkie, La.

Package Bees with Mated Queens
Italian or Caucasian

Customers: They are better bred, more profitable, gentle, and good honey producers. No deposit required to book your order. Full weight, health certificate, and live arrival guaranteed with each shipment. Send your requirements now.

— Prices —

Lots of	Queens	2 lb.	3 lb.	4 lb.
1 -25	$1.15	$3.00	$3.90	$4.85
25-50	1.05	2.90	3.80	4.75
50-100	1.00	2.85	3.75	4.65

FARRIS HOMAN
Shannon, Mississippi

HIGH QUALITY QUEENS
&
PACKAGE BEES
for 1 9 5 3

Carlus T. Harper
New Brockton, Ala.

PRODUCING PACKAGES AND QUEENS

(Continued from page 78)

and needs emphasis, as late deliveries can only cause a reduction in crops and a financial loss to the producer. **Service** to a reliable breeder is costly due to a planned program of producing more than he expects to sell. All reliable breeders are careful about booking orders to avoid delays, but abnormal conditions can and do bring up unexpected difficulties over which the breeder has no control. However, under average conditions, the breeder is able to give good service provided he does not overestimate his capacity. Being too optimistic is one cause which results in delays. The best policy is to figure production averages over a period of at least five years and book orders accordingly. Let us be reminded of the fact that a breeder who books beyond his capacity is in a position to extend his shipping season to his advantage. The buyer, of course, is the victim of any delay in getting his orders delivered and cares little about excuses causing such delays.

The factors contributing to the production of good queens and packages have been enumerated and emphasis on service and what it means to the buyer. If a buyer is shopping for prices, he usually receives what he pays for, as the production of good queens and bees costs more and when good service is included, we have a combination deserving the recognition of work well done by reliable bee producers.

The financial responsibility of the producer is important to protect the buyer against reverses experienced by the producer. Many buyers have lost their money due to the producers not being in a financial position to refund the money to the buyer in cases of emergency. There are many good producers, so be careful whom you do business with in the future.

PROTECT YOUR FUTURE. BUY YOUR SAVINGS BONDS NOW.

ITALIAN
PACKAGE BEES AND QUEENS
for 1 9 5 3
Write for Prices
GIRARDEAU APIARIES
Tifton, Ga.

PACKAGE BEES PAY OFF

(Continued from page 74)

were placed in other yards. Not having the time to keep the supers separate, I had to take a rough estimate on these. They averaged about 90 to 100 pounds to the hive, which I considered good for two-pound packages, hived in April. Altogether, my surplus honey averaged 120 pounds to the hive.

I might add that the experimental yard was headed with hybrid queens, which were sent in place of Caucasians, whereas the other 30 were Italians. Frankly, I believe this is what made the difference in yields. I do know this, that in checking through the hives, brood rearing in the hybrids was ahead of the others at all times. I liked them so well that I am getting about 40 more for this year '53.

Another feature I like about package bees is that they require less swarming prevention than wintered-over colonies. Package bees for me paid off the first year.

ECOLOGICAL STUDIES ON OVER-WINTERED COLONIES

(Continued from page 86)

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Reprinted September 29, 1952 from Journal of Economic Entomology 45: (3) :445

Good Italian Queens
One Dollar Each
White Pine Bee Farms
Rockton, Pa.

JENSEN Says:

Our business is breeding and raising better Queens and Bees. Not a side-line. We are prepared in every detail to serve you with the highest quality.

Oh yes! you can buy cheap, and cheaper, package bees and queens, but don't let prices blind your judgment. There is no substitute for quality; prove it to your own satisfaction.

Now Booking Orders
Shipping to start near April 1st.
Prices: For/or with "Magnolia State" Italian Queens

Quantities	2-lbs. Packages with Queens	3-lbs. Packages with Queens	Queens
1 -24	$3.75	$4.75	$1.30
25 -99	3.50	4.50	1.20
100-up	3.25	4.25	1.10

Full weights, predominately young Italian bees. No disease in our apiaries. Live delivery guaranteed.

Dadant stock Disease Resistant "Starline" Hybrid Queens, add 25c per queen or package to above prices. Wonderful producers, and pleasant to work with as good Italians.

JENSEN'S APIARIES
MACON, MISSISSIPPI U. S. A.

Package Bees for 1953

Truck loads a specialty
Nuclei made to order
Italian Queens

Eugene Walker

Live Oak, Calif.

ITALIAN BEES AND QUEENS

2-lb. pkg. with queen	$2.75
3-lb. pkg. with queen	3.50
Queens, each	.80

Book early and be sure of your shipping dates. 10% will book orders, balance 10 days before shipping date. Live delivery guaranteed.

BAYOU BEE CO
Rt. 1 Box 49 Montegut, La.

York's Package Bees and Queens for 1953

Quality and Service

7,500 colonies

Your Choice of Two Outstanding Strains
Quality Bred Dadant's Starline Hybrids
Quality Bred Italians

The Preference of Leading Honey Producers

Quantity	Packages with Italian queens 1-24	25-90	100-up
2-lb. pkg.	$3.75	$3.50	$3.25
3-lb. pkg.	4.75	4.50	4.25
4-lb. pkg.	5.75	5.50	5.25
5-lb. pkg.	6.75	6.50	6.25
Extra queens	1.30	1.20	1.10

Queenless packages, deduct $1.00 per pkg. Tested queens, add $1.00 each extra. Above prices are for/or with our regular line Italians. For DADANT'S STARLINE HYBRIDS add 25 cents additional to above prices.

Shipment by express, parcel post, or your truck. Detailed information available. Book your order now without delay and have your bees shipped when wanted.

YORK BEE CO. Jesup, Georgia, U.S.A.

(The Universal Apiaries)

Do You Have Idle Equipment?

We extend credit without charge to commercial beekeepers who use 100 or more packages. Our price, in quantities of 100 or more, for a 2-lb. package with a young laying, Bambi brand queen is $3.25 and the 3-lb. package with a young laying, Bambi brand queen is $4.25. Prices are f. o. b. Our newly designed shipping package gives better ventilation and fewer bees die in transit. We also extend credit, without charge, on order of 100 or more Bambi brand queens at $1.00 each. If interested, please send three character references; the number of packages or extra queens wanted; the shipping date; and as soon as we have had the time to check your references, you will immediately be advised if we are in a position to fill your order. Ask your neighbor about our Bambi brand queens.

Southern Apiaries & Supplies Co.

Chatom 1, Alabama

HELP WANTED

HELP WANTED. Two men for the package season March 15 to May 15. Give full information in first letter. H. C. Short, Fitzpatrick, Alabama.

EXPERIENCED BEEKEEPER WANTED: Either share crop or straight salary, will give purchase option if desired. A complete set-up. R. W. Barnes & Sons, Oakland, Nebr.

THE RICH HONEY FARMS, JEANERETTE, LA.

ITALIAN PACKAGE BEES—Heavy with bees, no drones. Shipped by parcel post or express. For parcel post shipment, add 75c per package for postage.

QUEENS—The finest money can buy. Your choice of two outstanding breeds. Painted, clipped or airmail at no extra cost.

DADANT'S STARLINE HYBRIDS

Worth much more than the price we are asking. You have years of selective breeding and testing in the ancestry of this strain. Every desirable quality known to beemen is bred into this line by artificial insemination. It has taken years to get this strain where it is today, and if in years to come there are better bees this will be it.

Starline queens:	1-24	$1.50
	25-99	1.40
	100-up	1.30

RICH'S LEATHER ITALIAN STOCK

Gentle, uniform, and good producers will do their part in getting for you many supers of honey. Breeding stock selected for high production, non-swarming, and gentleness. These bees are not resistant to A.F.B. as are the Starline Hybrids. You will, however, find them very profitable.

Regular Leather Italian queens:	1-24	$1.20
	25-99	1.10
	100-up	1.00

Packages	1-24	25-99	100-up
2-lb.	$3.50	$3.25	$3.00
3-lb.	4.50	4.25	4.00
4-lb.	5.50	5.25	5.00

When ordering packages with Starline queens, add 25c per package.

JUST NEWS

(Continued from page 113)

in Idaho during National Honey week which was promoted by the National Federation of Beekeepers and the American Honey Institute coupled with the radio advertising carried on by four radio stations in Idaho. The advertising committee spent $1000 for this purpose. It was the consensus that this advertising increased the consumption of honey and its future increased market use. It was decided to carry on a similar program during the coming year with more money appropriated to advertising Idaho honey, and still contributing liberally to the National Federation and the American Honey Institute. This advertising money which is upwards of $3000 raised by a 5 cent tax per colony of bees levied and collected by the County Assessors for advertising purposes is turned in each year. At the concluding meeting on Friday the following officers were elected for the coming year: Orville S. Cox of Shelley, President; Vernon Pendlebury of Blackfoot, Vice-Pres.; and Jay Redfield of Idaho Falls, Sec.-Treas.—O. S. Cox, Pres.

* * * * *

The 13-year-old BEEKEEPERS' MAGAZINE, published by Elmer Carroll at Lansing, Michigan until his death in 1951, and subsequently by his widow, Mrs. Ruth C. Carroll, has been sold to Hale Publishing Company, Hapeville, Georgia, it is announced by A. H. Hale, Jr.

The new owners will merge the BEEKEEPERS MAGAZINE with their bee journal, BEES. Beginning this year, BEES goes from a quarterly to a bimonthly basis, publishing in February, April, June, August, October, and December.

Subscribers to the BEEKEEPERS MAGAZINE will receive issues of BEES on an exchange basis.

* * * * *

CONTROLLING FLIGHT DISTANCE OF BEES

(Continued from page 92)

tell that your retort is working fine. When it stops crackling, you have only a few puffs left and should sprinkle more ammonium nitrate in the smoker. One man alone can gas 30 to 40 colonies per hour. However, experience is your best teacher.

There are many applications where this method can be of great help in beekeeping and if it helps to save bees from a cruel death, I shall indeed be contented.

* * * * *

BEE LINES TO THE EDITOR

(Continued from page 71)

re-queening like it was old stuff . . . and perhaps it is to you old timers. BUT what about the fellow who is new at it and who has but three or four hives?

"If you really want to be a help to the beginner why not show him by drawings and by words alongside of these drawings just how to go about the two above-mentioned tasks.

"The difference between a subscription and no subscription is not very much. Unless you cover these points in detail the beginner is apt to lose interest in both bees and magazine. This is true, particularly, where there is no neighbor or friend on whom he is able to call for advice or help.

Mr. Anthony . . . that is my problem . . . What shall I do?"—K. P.

PACKAGE BEES

Our THREE-BANDED ITALIAN BEES have been bred for greater honey production. Our northern location in Texas means a lower delivered cost to you. Our records will prove prompt shipments as specified. We guarantee safe express delivery. Advise quantity and dates desired and we will gladly make quotation. First shipments April 10th.

T. W. BURLESON & SON
Waxahachie, Texas

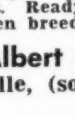
CAUCASIANS
CARNIOLANS

Hardy, prolific, rapid build-up, finest of workers, GENTLEST OF ALL RACES. GENTLENESS saves time, sweat, patience, work; safest in towns, near neighbors or near highways. Farthest south of any queen breeder in U. S. Need queens real early? Write.

Untested queens, $1.20 each, Air Mail

Discount on quantity orders. Ask. Some packages yet. Ready March 1st. Over 25 years a queen breeder.

Albert G. Hann
LaBelle, (south), Florida

NORMAN BROS.  **PACKAGE BEES AND QUEENS**

BRIGHT 3-BANDED Italians

For 1953 let's make it a prosperous year by starting with young vigorous healthy package bees and queens. We have the stock equipment and 32 years of experience in bee business. Write us for our Special low prices.

NORMAN BROS. APIARIES
Ramer, Ala.

(Continued from page 91)

sion that truth might emerge out of the conflict of men's opinions and prejudices. And the purpose has not been solely for material ends; the "poetry of beekeeping" and spiritual values have always found a place down through the years.

For proof of the above statement one need only read Mrs. Fassler's article beginning on page 24. Their experiences with their first bees were nothing startling materially but they obtained a sizable reward in other values. We hope your pets continue to give you "profit" of all kinds, Mrs. Fassler.

Perhaps a personal word at the end will be accepted by the Editor. During even the few years I have been a Gleanings contributor, I have appreciated greatly its carefully planned and arranged format, its variety of subjects covered, its diversity of contributors, and perhaps most of all, its "family feeling" which one obtains through association with the many members of its world wide "field force". One can see all the world's quarreling and hate, wars and suspicion, and yet feel that there is a way that men can still be brothers. May the 80 years lengthen into 100, and then onwards in the same spirit of service and progress.

PACKAGE BEES QUEENS

Early shipment. Italian Stock improved by selecting and testing through years of careful breeding. No Disease. Parcel Post or Express.

2-lb. pkg. w/q $3.25 10-up $3.15
3-lb. pkg. w/q 4.10 10-up 4.00
4 and 5-lb. pkg. proportionate

Queens, limited supply $1.00
or
10 at 90 cents each.
10% books orders. Free Circular.

Crenshaw County Apiaries
Rutledge, Ala.

Italian Bees

2-lb. $2.75
3-lb. 3.50
25 cents off on 100

A. J. Hook
Eutaw, Ala.

Package Bees . . "Gulf Breeze" . . Queens

You want packages with young bees and NO DRONES. You want QUEENS produced by men with a lifetime of experience. You want good SERVICE. You want to deal with a financially reliable concern. We assure you that we qualify in all respects, so place your order where you are backed with facts and not idle words.

Quantity	Queens	2-lb. w/q	3-lb. w/q	4-lb. w/q
1 -24	$1.25	$3.50	$4.40	$5.40
24 -99	1.15	3.35	4.25	5.25
100-up	1.10	3.25	4.15	5.15

Bessonet Bee Co. Donaldsonville, La.

Three-Band Italian Package Bees and Queens and Pure Italian Three-Way D. R. Queens

Full weight, prompt shipment, young bees. State health certificate with each shipment. Live arrival guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent.

1953 Prices

Each Package with a Young Laying Queen

Lots of	2-lb.	3-lb.	4-lb.	5-lb.
1 - 29	$3.25	$4.00	$4.75	$5.50
30-100	3.00	3.75	4.50	5.25
100-up, each	2.80	3.50	4.25	5.00

Tested Queens $2.00 each Untested Queens $1.00 each

For introduced queens, add $1.00 per package. If queenless bees are wanted, deduct $1.00 from the price of each package.

Jackson Apiaries Funston, Georgia, U. S. A.

PACKAGE BEES WITH YOUNG LAYING QUEENS

	2-lbs.	3-lbs.	extra queens
1 -24	$3.75	$4.75	$1.20
25 -99	3.50	4.50	1.15
100-up	3.25	4.25	1.10

Dark Italians that will get the honey. A shipper for 26 years.

WEAVER APIARIES - - - - - Navasota, Texas

1953 QUEEN BEES

3-Banded Italians
Untested

1-9 ..... $1.10 each
10 or more ..... 1.00 each

Geo. W. Moore
Shasta, Shasta Co., California

ITALIAN BEES AND QUEENS

	1-24	25-up
2-lb. pkg. with queen	$3.00	$2.80
3-lb. pkg. with queen	3.80	3.45
4-lb. pkg. with queen	4.60	4.35
5-lb. pkg. with queen	5.40	5.15
Extra queens, ...		.85

Live delivery guaranteed and health certificate. 10% books your order. Balance 10 days before shipping date.

GASPARD BEE CO. HESSMER, LA.

PLANT'S 3-banded ITALIANS

PRODUCTIVE — GENTLE
EASY TO HANDLE

The quality, service, and reliability we offer is backed by over 45 years' experience.

We guarantee prompt shipment, safe delivery by express, and complete satisfaction.

Health certificate on all shipments.

	1-24	25-99	100-up
2-lbs. w/q	$3.50	$3.25	$3.00
3-lbs. w/q	4.50	4.25	4.00
Queens	1.25	1.15	1.10

For larger packages, add $1.00 per pound.

W. E. PLANT
HATTIESBURG, MISSISSIPPI

For Top Quality and Service on Package Bees and Queens
Send Us Your Orders.
We Offer Two Quality Strains:—

Garon's Three-Banded Italian Queens
Dadant Starline Hybrid Queens

Queens will be mailed Postpaid. If Parcel Post is wanted on Package Bees, shipments will be sent C.O.D. for postage and Special Handling Charges.

Prices:

	Italians	Starlines	2-lb. w/qn.	3-lb. w/qn.	4-lb. w/qn.	
1 -24	$1.20	$1.50	$3.50	$4.45	$5.40	Ex. Co.
25 -99	1.15	1.40	3.35	4.30	5.25	" "
100-up	1.10	1.30	3.25	4.20	5.15	" "

If Dadant Starline Queens desired with packages, add 25c per package.
Quees clipped and/or painted without extra charges.

GARON BEE COMPANY Donaldsonville, La., U. S. A.

Dadant's Starline Hybrids John Davis Italians
Produced in Little's Apiaries
Best Quality, Prompt Service, Full Weight.
Booking orders now for spring delivery.
Reg. U.S. Pat. Off.
LITTLE'S APIARIES P. O. Box 122 Shelbyville, Tenn.

Index to Display Advertisers

Achtenhagen, H. C. 71
Adelhardt, George 67
Aeppler Co., C. W. 117
American Bee Journal 70
Australian Bee Journal 70
Australasian Beekeeper 70
Bayou Bee Co. 123
Bessonet Bee Co. 127
Blue Bonnet Apiaries 118
British Bee Journal 66
Brunson, H. C. 118
Bryant & Sawyer 71
Burleson & Son, T. W. 67, 126
Calvert Apiaries 121
Canadian Bee Journal 71
Caucasian Apiaries 119
Chrysler & Son, W. A. 66
Crenshaw County Apiaries 126
Dadant & Sons ....Inside front cover
Garon Bee Co. 128
Gaspard Bee Co. 127
Georgia Bee & Honey Apiaries 119
Girardeau Apiaries 122
Hann, Albert G. 126
Harper, Carlus T. 122
Hazel- Atlas Glass Co. ....Inside back cover
Homan Bros. 120
Homan, Farris 122
Hook, A. J. 126
Hubbard Apiaries 67
Hummer & Sons, Geo. A. 69
Jackson Apiaries 127
Jensen's Apiaries 123
Jepson, Co. H. H. 70
Kelley Co., The Walter T. 66, 68
Koehnen & Sons, C. F. 120
Leverette, Walter D. 122
Little's Apiaries 128
Lotz Co., August 71
Lucedale Apiaries 118
Marshfield Mfg. Co. 69
McCord Mfg. Co. 66
McVay, J. F. 121
Merrill Bee Co. 120
Michigan Bee & Farm Supply 117
Mitchell's Apiaries 122
Modern Beekeeping 70
Moore, Geo. W. 127
Moore, Sam E. 120
Muth Co., The Fred W. 67
New Zealand Beekeeper 67
Norman Bros. Apiaries 126
Pencin, Joe 119
Plant, W. E. 127
Rich Honey Farms 125
Root Co., The A. I. ....Outside back cover
Root Co., of Indianapolis, A. I. 66
Root Co. of Syracuse, A. I. 70
Rossman Apiaries 119
Southern Apiaries & Supplies Co. 123
Standard Churn Co. 67
Stoller Honey Farms 66
Stover Apiaries 72
Sunkist Bee Co. 120
Victor, W. O. 68
Walker, Eugene 123
Weaver Apiaries 127
Weaver, Howard 121
White Pine Bee Farms 123
Wickwire Bros. 67
Wilbanks Apiaries 121
Williams Apiaries, Dr. 117
Woodman Co., A. G. 71
Yates, A. W. 70
York Bee Co. 123